A STUDY TO ASSESS THE EFFECTIVENESS OF SELECTED INTERVENTIONAL PACKAGE ON LEVEL OF BLOOD PRESSURE AND STRESS AMONG CLIENTS WITH HYPERTENSION ADMITTED AT SELECTED HOSPITAL, TIRUVANNAMALAI

DISSERTATION SUBMITTED TO

THE TAMIL NADU DR.M.G.R.MEDICAL UNIVERSITY

CHENNAI

IN PARTIAL FULFILMENT OF REQUIREMENT FOR THE DEGREE OF

MASTER OF SCIENCE IN NURSING

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LIST OF ABBREVATIONS

AAD	-	Average American Diet
ALA	-	Alpha Linolenic Acid
ANOVA	-	Analysis Of Variance
AVP	-	Arginine-Vasopressin
BMI	-	Body Mass Index
BP	-	Blood Pressure
CAM	-	Complementary and Alternative Medicine
CI	-	Confidence Interval
CINHAL	-	Cumulative Index of Nursing and Allied Health Literature
CVD	-	Cardiovascular Disease
DBP	-	Diastolic Blood Pressure
DL	-	Deci Litre
f	-	Frequency
FMD	-	Flow-Mediated Dilatation
HTN	-	Hypertension
JNC	-	Joint National Committee
JPMR	-	Jacobson Progressive Muscle Relaxation
LA	-	Linolenic Acid
MD	-	Mean Difference
mg	-	Milligram
mmhg	-	Milli Meter of Mercury
NCHS	-	National Center for Health Statistics
N.S	-	Non Significant
PMR	-	Progressive Muscle Relaxation
PSS	-	Perceived Stress Scale

S	-	Significant
SAI	-	State Anxiety Inventory
SBP	-	Systolic Blood Pressure
SD	-	Standard Deviation
SEES	-	Subjective Exercise Experience Scale
SH	-	Sustained Hypertension
SPSS	-	Statistical Package for the Social Sciences
WHO	-	World Health Organization

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ABSTRACT

A Study to assess the effectiveness of Selected Interventional Package on Level of Blood Pressure and Stress among Clients with Hypertension admitted at Selected Hospital, Tiruvannamalai.

INTRODUCTION

Hypertension is a non communicable and preventable disease. Stress is one of the variables that have positive correlation in the development of Hypertension.

According to WHO(2012) in India 23.10% men and 22.60% women over 25 years old suffer from Hypertension. In India, increased blood pressure is a high-risk condition that causes approximately 51 % deaths from stroke and 45% deaths from coronary artery disease.

The treatment for hypertension includes both pharmacological and non-pharmacological management. Focusing on diet therapy, relaxation therapy, exercise, and other non-pharmacological measures will help the client in reduction of blood pressure and stress.

Flax seed proven to have many medical benefits for blood pressure and it contains omega 3 fatty acids, which helps in improving blood circulation and reduces cholesterol level in the blood and hence reduces blood pressure in the Hypertensive clients. JPMR used relaxes the muscles and reduces the stress. It is a cost effective intervention with no side effects and improves the life span of the Adult with hypertension. Hence, reduction in the level of stress has a direct impact in decreasing the level of blood pressure.

OBJECTIVES

To assess the effectiveness of selected interventional package on the level of blood pressure and stress among clients with hypertension.

RESEARCH DESIGN

A True experimental design (pre and post test design) used.

SETTING

The study was conducted in Sai Seva Yoga Nature Cure Hospital and Research Centre located at Tiruvannamalai and the duration of the study was 4 weeks only.

SAMPLING TECHNIQUE

Simple random sampling technique was used to select the 60 clients with hypertension 30 were assigned to experimental group and 30 to control group.

PARTICIPANTS

60 clients with hypertension who fulfill the inclusive criteria.

INTERVENTION

Selected interventional package was provided after the pre-test among the clients with hypertension to the experimental group and hospital routine were provided for the control group. 30 gm of Flax seed were given to the client in the powder form and JPMR was provided for 15-20 minutes for 7 days (once a day) to the experimental group.

MEASUREMENTS AND TOOL

The data was collected by interview/ observational method. Blood pressure was assessed using sphygmomanometer and stress was assessed using perceived stress scale for clients with hypertension.

RESULTS

On analysis of pre and post test level of Blood pressure in experimental group, the calculated paired 't' value of t = 16.695 for SBP and t= 11.164 for DBP was found to be statistically significant at $p<0.001$ level.

On analysis of pre and post test level of Blood pressure in control group, the calculated paired 't' value of t = 1.980 for SBP and t= 0.891 for DBP was not found to be statistically significant.

On analysis of pre and post test level of stress in experimental group, the calculated paired 't' value of t = 12.623 for stress in experimental group was found to be statistically significant at $p<0.001$ level.

On analysis of pre and post test level of stress in control group, the calculated paired 't' value of t= 1.795 was not found to be statistically significant at $p<0.001$ level.

On analysis of post test level of systolic Blood pressure between experimental and control group, the calculated unpaired 't' value of t = 9.011 was found to be statistically significant at $p<0.001$ level.

On analysis of post test level of Diastolic Blood pressure between experimental and control group, the calculated unpaired 't' value of t = 9.820 was found to be statistically significant at $p<0.001$ level.

On analysis of post test level of stress between experimental and control group, the calculated unpaired 't' value of t = 9.885 was found to be statistically significant at $p<0.001$ level.

In experimental group, a positive correlation was observed between post test SBP and stress & Post test DBP and Stress in experimental group which was found to be statistically significant at $p<0.05$ level.

In control group, a positive correlation was observed between post test SBP and stress shows a positive correlation but was not found to be statistically significant. The post test DBP and stress shows a positive correlation which was found to be statistically significant at $p<0.05$ level.

CONCLUSION

The selected interventional package was administered to the clients with hypertension in experimental group which showed a significant reduction in post test level of Blood pressure and stress than the clients in the control group who received normal routine hospital treatment. Hence, the selected interventional package can be

used as an effective nursing intervention and as safe non pharmacological measures to reduce the high Blood Pressure and stress among clients with hypertension.

IMPLICATIONS FOR CLINICAL PRACTICE

The significantly reduced level of blood pressure and stress among clients with Hypertension after the selected interventional package suggests the significance of Nurse's role in planning and providing the non pharmacological measures in reducing BP and stress among clients with Hypertension, also in educating and training for life style modification using non pharmacological measures to promote healthy behavior and longevity of life by decreasing the risk for complications in clients with Hypertension. Further researches suggested increasing the knowledge, practice and attitude on flax seed administration and JPMR for the clients with hypertension and their caregiver.

CHAPTER – 1

INTRODUCTION

Hypertension as it could be described as "sleeping snake"

1.1 BACKGROUND OF THE STUDY

Hypertension is ranked as fourth top most disease on the basis of its prevalence. It affects approximately one billion individuals worldwide. Hypertension as it could be described as "sleeping snake" which bites when it waken up. As long as it sleeping one does not really bother, but when it bites, it bites with the venoms, thereby ending the various serious disabilities and even death occurs in large percentage. In developing country like India unawareness, negligence towards health services result in higher mortality rate as compared to developed country. Hypertension is an important medical and public health issue, exists worldwide. But the fact is that Hypertension is a controllable disease.

The population at risk above the age of 20 years is 330 million. It is a major health problem and biggest of the challenges of the 21st century. Hypertension was directly responsible for 7.5 million deaths in 2012-12.8% of the total global deaths. Although India currently is not as hypertensive as its neighborhood, yet the fear of the disease becoming a major health concern in the coming years appears to be real.

According to the World Health Statistics report **(2012)**, in India, 23.10 per cent men and 22.60 per cent women above 25 years suffer from Hypertension and the global average of 29.20 in men and 24.80 in women respectively. The total number of blood pressure patients in the country is estimated to rise up from about 118 million in 2000 to about 214 million by 2030.

WHO announced the theme as "**measure your blood pressure and reduce your risk"** for World health day on 7th April 2013.

World Hypertension day is conducted on 17th May 2013, which promotes awareness on the prevention, detection, control, treatment and complications of

Hypertension. The WHO theme of the year 2013 is **Healthy Heart Beat – Healthy Blood Pressure** (WHO 2013). WHO is calling for intensified efforts to prevent and control Hypertension, also known as high blood pressure is estimated to affect more than one in 3 adults aged 25 and over, or about one billion people.

Hypertension is an interesting disease entity of its own. It remains silent, being generally asymptomatic during its clinical course. As its clinical course is hidden beneath outwardly asymptomatic appearance, the disease does immense harm to the body in the form of target organ damage; hence, the **WHO** has named it "silent killer".

According to **Nanduri.R (2010)** Blood pressure control is a lifelong challenge, HTN can progress through the years and treatment that worked earlier in life may need to be adjusted over time by life style modification.

In India, prevalence of Hypertension has been estimated between 20% to 40% in urban adults and 12% to 17% in rural adults. Hypertension is estimated to cause 7.1 million deaths globally (13% of the total). Across the income groups of countries, the prevalence of raised blood pressure was a consistently high, with low, lower middle and upper middle country all having rates of around 40%. The prevalence in high income countries was lower, at 35%.

According to **Mayer (2010)** stress is a direct or indirect contributor to HTN, stress reduction techniques can help to reduce BP. Recent evidence confirms the correlation between stress and Hypertension (high blood pressure). Study findings revealed that men who periodically measured highest on the stress scale were twice as likely to have high blood pressure as those with normal stress. The effects of stress on blood pressure in women were less clear. Occupational stress and failure in the career have been specifically linked to high blood pressure in both men and women.

Even small reduction in BP can have large clinical effects. Reduction in DBP of 5-6 mm Hg resulted in 42% reduction in stroke and 14% decrease in heart disease. Thus there is a need for non pharmacological method of BP control.

Hypertension is a non curable disease. The treatment for Hypertension is like pharmacological and non pharmacological management. Pharmacological treatment alone is not sufficient to reduce the blood pressure, but the combination of both pharmacological and non pharmacological management is required to reduce blood pressure. As a result there are many non pharmacological techniques to reduce blood pressure. Focusing diet therapy, relaxation therapy, exercise, and some of the non pharmacological measures helps the client in reduction of blood pressure.

Dietary interventions have been suggested as a preferential complimentary strategy to current pharmacological strategies to control blood pressure. Flaxseed is a dietary intervention that has been used recently to reduce the risk of cardiovascular disease. Flaxseed has exhibited cardioprotective effects in human being predisposed to cardiovascular disease by reducing atherogenicity , plasma cholesterol , plasma glucose , plasma trans fats , and blood pressure .Flax is a family of Linaceae and other name for flax is Linum usitatissimum (**Canadian** A**gricultural Association).** It is a blue flowering plant that produces seeds that are golden yellow to reddish brown. There are two main types of flaxseed: golden flaxseed and brown flaxseed. Both contain the same number of short-chain omega-3 fatty acids. **Flaxseed** is rich in **potassium, calcium, magnesium, Vitamin C**, and **omega-3 fatty acids**, which all are beneficial for people with high blood pressure.

According to American Nutrition Association (2012), two heaped dessert spoons are roughly equal to 30g of milled flaxseed and this provides around 7g of omega 3 fatty acids. There is also around 8g of fibre in this size serving, as well as 80mg of calcium, 2mg iron and 1mg of zinc. The constituents in flax seed as antihypertensive effects that help in maintaining the heart naturally healthy.

Flax seed contains omega-3 fatty acids that foster good circulation the presence of omega-3 fatty acids makes blood platelets less likely to clump together and form clots. Magnesium reduces elevated blood pressure by relaxing the muscles that control blood vessels, allowing blood to flow more freely. Vitamin C may widen blood vessels, thus helping to lower blood pressure.

Hypertension by itself tends to evoke anxiety and concern about the dreadful consequences when the diagnosis is revealed. Stress and diet is a modifiable factor for Hypertension. Teaching patient's life style modification like stress and diet is very important for control of Hypertension. Flax seed is a natural diet with no side effects and JPMR is a quicker and cost effective method of self help approaches for relaxation. Progressive muscle relaxation is a systematic technique for managing stress and achieving a deep state of relaxation. It was developed by Dr. Edmund Jacobson in the 1930s.He discovered that a muscle could be relaxed by first tensing it for a few seconds and then releasing it. Tensing and releasing various muscle groups throughout the body produces a state of relaxation.

In hypertensive patients, PMR reduces perception of stress and it enhances perception of health. It decreases the symptoms of stress, anxiety, anger level and enhances the psychological health and health related quality of life.

1.2 NEED FOR THE STUDY

Hypertension is one of the most crucial health problem and the most common chronic disease in developed and underdeveloped countries. It is called the silent killer which is usually diagnosed incidentally. Although Hypertension is a preventable and treatable condition but without treatment it leads to serious and life threatening complications such as heart, kidney and brain disorders which in most cases result in patient's disability. Prevention plays significant role in controlling this disease which is achieved by increasing the knowledge and awareness of the public life style modification and changing their attitude and practice.

According to Public Health Foundation of India **(2013),** in India there are 20- 30 percent of Indians suffering from high blood pressure and the global average stands at 40 percent. In absolute numbers the statistical figures are huge and a matter of concern as

well. The prevalence of Hypertension is 59.9and 69.9 per 1000, in males and females respectively in urban population and 35.5 and 35.9per 1000 in males and females respectively in rural population.

Hypertension is primarily treated pharmaceutically, however, research use of adjunct non-pharmaceutical therapies is accumulating and they are increasingly recommended. Well researched interventions include lifestyle modifications such as diet, exercise, dietary supplementation and mind-body practices, educational interventions, and technology-based interventions. Due to the prevalence and disease causing potential of Hypertension, there is a need for evidence-based interventions, which may contribute to the management of hypertensive clients.

According to **Metha.A.B (2012),** the count of hypertensive individuals is expected to rise from 118 million in 2000 to 214 million in 2025. Nearly 1 out of every 4 person in India suffers from high blood pressure.

The technological and economic development in the nation have reduced the physical activity of the people to a very large extent and increased the alcohol and tobacco use and hence the prevalence of Hypertension in adults in developing countries ranges from 10% to 20%.

The American Nutrition Association (2012), highlighted the importance of this "neglected food," stating that flaxseed is **"an excellent source of two fatty acids**-linolenic acid and alpha-linolenic acid that are essential for human health. Two heaped dessert spoons of ground flaxseed could make a dramatic difference in reducing BP and preventing the risk of stroke and heart attack.

Flaxseed is a good source of dietary fiber and omega-3 fatty acids. The fiber in flaxseed is found primarily in the seed coat. Flax seed when taken before a meal, the fiber seems to make people feel less hungry, so that they might eat less food. This fiber binds with cholesterol in the intestine and prevents it from being absorbed. Flaxseed also seems to make platelets, the blood cells involved in clotting, less sticky. Overall, flaxseed's effects on cholesterol and blood clotting may lower the risk of "hardening of

the arteries" (atherosclerosis) and reduces blood pressure by relaxing the smooth muscles and improve the blood circulation.

Guzman R (2013) conducted a study to examine the effects of daily ingestion of flaxseed on systolic (SBP) and diastolic blood pressure (DBP) in peripheral artery disease patients. SBP was 10 mmHg lower, and DBP was 7 mmHg lower in the flaxseed group compared with placebo. Patients who entered the trial with a SBP ≥ 140 mmHg at baseline obtained a significant reduction of 15mmHg in SBP and 7mmHg in DBP from flaxseed ingestion. The antihypertensive effect was achieved selectively in hypertensive patients. Flaxseed induced one of the most potent antihypertensive effects achieved by a dietary intervention.

Stress is one of the variables that have positive correlation in the development of Hypertension. Stress increases peripheral vascular resistance and cardiac output and stimulates sympathetic nervous system activity. People exposed to high levels of repeated psychological stress develop Hypertension largely. A report from American Institute of Stress estimates that 60-90% of all primary care visits involve stress related Hypertension. Reducing stress can lower high blood pressure. In order to cope with stress, the person needs to learn how to relax. Relaxation is an active process involving technique that calms the body and mind. Relaxation techniques such as deep breathing, meditation, progressive muscle relaxation, biofeedback etc, can help to activate this relaxation response. Progressive muscle relaxation is a technique for reducing anxiety by alternately tensing and relaxing the muscles.

Relaxation is the emotional state of a living being, of low tension, in which there is an absence of arousal that could come from sources such as anger, anxiety, or fear. According to the Oxford dictionary, "Relaxation" is when the body and mind is free from tension and anxiety. Relaxation is a form of mild ecstasy coming from the frontal lobe of the brain in which the backward cortex sends signals to the frontal cortex via a mild sedative. Relaxation can be achieved through meditation, autogenics, and progressive muscle relaxation. Relaxation helps improve coping with stress. Stress is the leading cause of mental problems and physical problems; therefore feeling relaxed is beneficial for a person's health. When stressed, the sympathetic nervous system is

activated resulting in fight-or-flight response mode; over time, this could have negative effects on the human body.

Progressive muscle relaxation is a relaxation technique that requires an individual to focus on flexing and holding a certain set of muscles and then slowly relaxing those same muscles. As the individual flexes and releases those muscles from top to bottom they will feel a deep sense of relaxation. Progressive muscle relaxation is currently used in clinical and non-clinical settings to reduce the effects of anxiety, Hypertension and sleeplessness brought upon by stress.

Khanna, A. (2010), conducted a comparative study to assess the effectiveness of Galvanic Skin Response biofeedback and progressive muscle relaxation training in reducing blood pressure and respiratory rate in Amritsar. The results revealed that progressive muscle relaxation group showed significant differences for systolic blood pressure[$P<0.05$] and diastolic blood pressure [$P<0.01$] and the study concluded that galvanic skin response biofeedback and progressive muscle relaxation training resulted in lowering both systolic and diastolic blood pressure.

The Investigator when posted in the clinical area has taken care of clients with Hypertension and noticed that antihypertensive medications is costly which demands careful monitoring, produces side effects like renal dysfunction, GI upsets, fluid and electrolyte imbalances and cardiac arrhythmias, which may be so severe. The investigator felt the need for non pharmacological management like dietary supplementation with flax seed, JPMR that reduce the blood pressure and stress among clients with Hypertension and reduce the economic burden of hospitalization with use of safe, cost effective and non pharmacological method. This motivated the investigator to undertake the present study to assess the effectiveness of selected interventional package on level of blood pressure and stress among client with Hypertension.

1.3 STATEMENT OF THE PROBLEM

A study to assess the effectiveness of selected Interventional package on level of Blood pressure and stress among Clients with Hypertension admitted at Selected Hospital, Tiruvannamalai.

1.4 OBJECTIVES

1. To assess the pre test level of blood pressure and stress among clients with Hypertension in experimental and control group.
2. To assess the post test level of blood pressure and stress among clients with Hypertension in experimental and control group.
3. To compare the pre and post test level of blood pressure and stress among clients with Hypertension in experimental group.
4. To compare the pre and post test level of blood pressure and stress among clients with Hypertension in control group.
5. To compare the pre test level of blood pressure and stress among clients with Hypertension between experimental group and control group.
6. To compare the post test level of blood pressure and stress among clients with Hypertension between experimental group and control group.
7. To correlate between the level of blood pressure and stress among clients with Hypertension in experimental group.
8. To correlate between the level of blood pressure and stress among clients with Hypertension in control group.
9. To determine the association in the pre and post test mean difference level of blood pressure and stress among clients with their selected demographic variables in experimental group.
10. To determine the association in the pre and post test mean difference level of blood pressure and stress among clients with their selected demographic variables in control group.

1.5 OPERATIONAL DEFINITIONS

Effectiveness

It is the outcome of selected interventional package on level of Blood pressure and stress among clients with Hypertension which will be assessed using Blood pressure measurement by sphygmomanometer and perceived stress 10 items scale respectively.

Interventional Package

It includes flax seed powder (30gm) supplementation and Jacobson progressive muscle relaxation technique for the clients with Hypertension.

- **Flax Seed Powder**

Flax seed powder is a natural and rich in omega 3fatty acid and fibre. In this study it is referred to, which is been powdered Flax seed 30gm administered after 2 hours intake of antihypertensive medication to the client with Hypertension for 7 consecutive days.

- **Jacobson Progressive Muscle Relaxation**

It refers to progressive muscle relaxation which is a systemic technique for managing stress and achieving a deep state of relaxation. In this study, it refers to a relaxation technique in which a person first tenses and releases major muscle groups of the body in a prefixed and systematic order, usually beginning at the body and progressing downwards and is performed for 15-20minutes daily for 7 consecutive days once a day.

Blood Pressure

Refers to consistent systolic blood pressure > 140mmofHg and diastolic blood pressure > 90 mmHg which will be assessed using blood pressure measurement by sphygmomanometer.

Stress

It is a state of psychological response of the body to any physiological change which will be assessed by perceived stress 10 item scale.

Clients

Clients who are diagnosed as hypertensive, admitted in the hospital for the treatment of Hypertension.

Hypertension

Hypertension is a medical condition in which person has blood pressure as per Joint National Committee for blood pressure classification from prehypertension, stage 1 and stage 2 Hypertension.

Category	Systolic blood pressure (mm Hg)	Diastolic blood pressure(mm Hg)
Pre Hypertension	120-139	80-89
Stage 1	140-159	90-99
Stage 2	≥160	≥100

1.6 ASSUMPTIONS

1. Clients with Hypertension will be suffering with stress.
2. Interventional package may help to change the level of blood pressure and reduce stress among clients with Hypertension.

1.7 NULL HYPOTHESES

NH_1: There is no significant difference between pre and post test level of blood pressure and stress among clients with Hypertension in experimental group at $p<0.05$.

NH_2: There is no significant difference between pre and post test level of blood pressure and stress among clients with Hypertension in control group at $p<0.05$.

NH_3: There is no significant difference in the post test level of blood pressure and stress among clients with Hypertension between experimental and control group at $p<0.05$.

NH_4: There is no significant correlation between post test level of blood pressure and stress among clients with Hypertension in experimental group at $p<0.05$.

NH_5: There is no significant correlation between post test level of blood pressure and stress among clients with Hypertension in control group at $p<0.05$.

NH_6: There is no significant association in the pre and post test mean difference level of blood pressure and stress among clients with their selected demographic variables in Hypertension clients in experimental group at $p<0.05$.

NH_7: There is no significant association in the pre and post test mean difference level of blood pressure and stress among clients with their selected demographic variables in Hypertension clients in control group at $p<0.05$.

1.8 DELIMITATIONS

1. The study is delimited to 4 weeks only.
2. The study is conducted in selected setting only.

1.9 CONCEPTUAL FRAMEWORK

The conceptual framework or a model is made up of concepts. It provides the guidelines to proceed to attain goals and objectives our study based on the theory. It is a schematic representation of the steps, activities and outcome of the study.

The investigator adopted **WIEDENBACH'S HELPING ART OF CLINICAL NURSING THEORY** as a base for developing the conceptual framework.

The study is based on the concept that administration of selected interventional package to client with Hypertension admitted at selected hospital.

Ernestin Wiedenbach proposes "Helping art of clinical nursing theory" for nursing, which describes a desired situation and the way to attain it. It directs action towards an explicit goal.

The theory has three factors: Central Purpose, Prescription and Realties.

- **CENTRAL PURPOSE**

It refers to what the nurse has to accomplish. In this study, the investigator identified the central purpose as the effectiveness of selected interventional package in changing the blood pressure and stress of clients with Hypertension.

- **PRESCRIPTION**

It refers to plan of care for the Hypertension clients. It will specify the nature of action that fulfills the nurse central purpose. In this study the investigator adopted effectiveness of selected interventional package on level of blood pressure and stress among clients with Hypertension.

- **REALITIES**

It refers to the physical, physiological, emotional, spiritual factors that come into play in situation involving nursing action. The realities identified by Wiedenbach's are agent, recipient, goal, means, and framework.

- **Agent:**

Who is the practicing nurse or investigator delegate characterized by personal attributes, problems, capacities, commitment, and competence in Nursing. In this research the agent was investigator.

- **Recipient:**

Is the patient is characterized by personal attributes, problems, capacities, aspiration and ability to cope with the concern or problems being experienced. In this study client with Hypertension admitted at Sai Seva Yoga Nature Cure Hospital and Research Centre at Tiruvannamalai were the recipients.

- **Goal:**

Is the defined outcome, the nurse wish to achieve. In this study goal is the effective management on level of blood pressure and stress of clients with Hypertension

- **Means:**

Comprise the activities and devices through which the practitioners attain the goal. The mean include skills, techniques, procedures and devices that may be used to facilitate nursing practice. In this study, means is the selected in selected interventional package.

- **Framework:**

Consist of the human, environmental, professional, organizational facilities that not only make up the context which nursing practice but also constitute the currently existing limits. In this study, the framework was the Sai Seva Yoga Nature Cure Hospital and Research Centre at Tiruvannamalai.

The conceptualization of nursing practice-according to this theory consists of three steps:

Step 1: Identifying the need for help.

Step 2: Ministering the need for help.

Step 3: Validating the need for help was met.

Step 1: Identifying the need for help

The determination of need for help was made by the process of selecting Hypertension clients based on inclusive and exclusive criteria which is followed by pre-assessment. Simple random sampling techniques were used to assign the Hypertension clients in experimental group and control group to assess the level of blood pressure and stress among clients with Hypertension.

Step 2: Ministering the need for help

After the assessment of pre test level of blood pressure and stress among experimental group and control group of the Hypertension clients, selected interventional package is administered to the experimental group and no intervention given for control group.

Step 3: Validating the need for help was met

This is accomplishing by means of pre and post test level of experimental group and control group. It is followed by analysis of the interpretation of results.

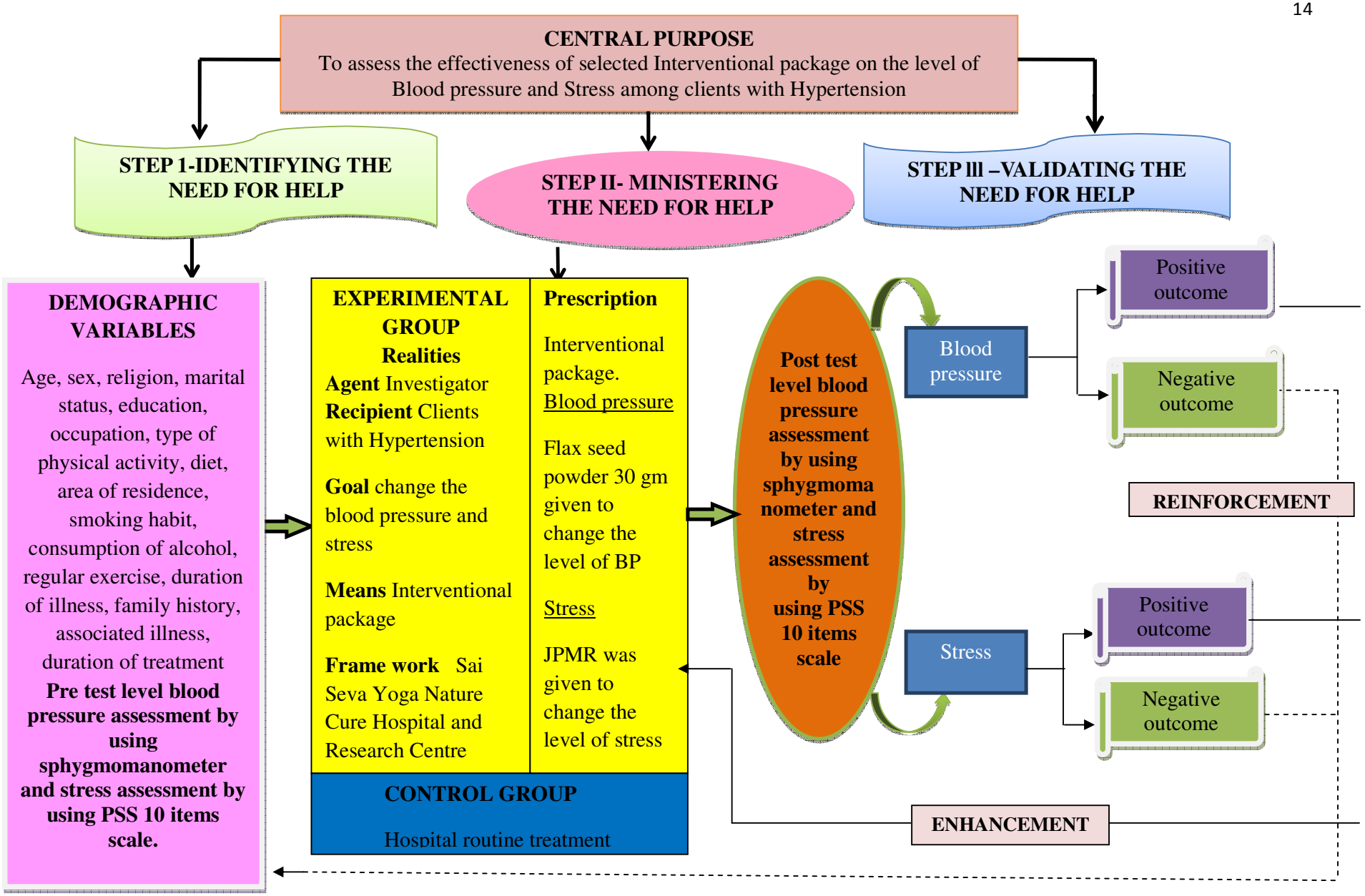

FIG.1.9.1: CONCEPTUAL FRAMEWORK BASED ON WIEDENBACH'S HELPING ART OF CLINICAL NURSING THEORY

CHAPTER – 2

REVIEW OF LITERATURE

The review of literature is an essential aspect of scientific research. Its entails the identification the systematic identification, reflection, critical analysis and reporting of existing information relation to the problem of interest. The purpose of review of literature is to obtain comprehensive knowledge and in depth information about the effectiveness of interventional package on reducing blood pressure and stress among client with Hypertension.

Review of literature is a systemic study of a number of previous studies which helps to support the research work done. It includes all types of studies. It gives an idea of how the study can be conducted and what is to be done for it. It is helpful for the investigator:

The review of literature is organized under the following sections.

- **Section 2.1 :** Reviews related to Hypertension
- **Section 2.2 :** Review related to correlation between Hypertension and Stress
- **Section 2.3 :** Reviews related to Jacobson progressive muscle relaxation technique on stress and Hypertension
- **Section 2.4 :** Reviews related to flax seed on Hypertension

Section 2.1: Reviews related to Hypertension

Deepak Goel. **(2013)** conducted a meta-analysis study to determine the prevalence of Hypertension in the urban and rural population of India. Studies were identified through computer based and manual searches using MEDLINE/ Pub Med, Google scholar, Cochrane Library and reference lists of prevalence studies from January 2000 to June 2012. 12 studies including 125333 subjects had analyzed to assess the prevalence of Hypertension in the urban population, whereas 10 studies including 24800 subjects had analyzed to determine the prevalence of Hypertension in the rural population. The prevalence of Hypertension in the urban population was estimated to be 40.8% and Hypertension in the rural population was 17.9%. The findings of the study

revealed that prevalence of Hypertension is significantly higher in the urban population of India compared to the rural.

Sushil K. Bansal (2012) conducted a prospective door-to-door survey to identify the prevalence and risk factors for Hypertension in a rural community in North-East India. All residents were interviewed and data were relating to the demographics of the individuals and blood pressure measured. They selected 1348 people living in the rural area. Assessment was carried out on age group from 15 years and over (n=968, 71.8%). Cases of known hypertensive on medication were present in 30.9% in males and 27.8% in females. Increasing age and higher body mass index (BMI) had independent predictors of Hypertension in both sexes, with stress an additional independent predictor in males. The finding of the study reveals that Hypertension in the rural community under study is similar to those seen in high-income countries and in urban India.

Chythra R. Rao et al., (2012) conducted a cross-sectional community based survey to determine the prevalence and the socio demographic variables correlates with Hypertension among 1,239 adults aged ≥30 years in Karnataka. Data was collected by personal interviews, followed by anthropometric and blood pressure measurements. Analyses were done using Statistical Package for the Social Sciences (SPSS) version 11.5. The prevalence of Hypertension was 43.3%, with the prevalence being more among males (51.6%) as compared to females (38.9%). The findings revealed that total prevalence 23.1% (287) were known cases, and 20.2% (250) were newly detected cases. Based the Joint National Committee (JNC VII) on high blood pressure, prehypertension was identified among 38.7%. Increasing age, male gender, current diabetic status, central obesity, overweight and obesity as defined by body mass index, and family history of Hypertension were identified as significant correlates for Hypertension.

Fakhri Sabouhi (2011) conducted a cross-sectional correlation-descriptive study to assess the Knowledge, awareness, attitudes and practice about Hypertension in hypertensive patients referring to public health care centers in Khoor & Biabanak. Study conducted in one stage, by one group. 234 patients were selected by random sampling technique among hypertensive clients. Data collection was carried out with a questionnaire. The findings indicate that there is a significant relationship between

awareness and knowledge; awareness and attitude; awareness and practice at $p< 0.01$ level. There is no significant relationship between knowledge and attitude or knowledge and practice at $p<0.01$. These results proved that there is a significant relationship between attitude and practice of the patients.

Subburam, R., et al., (2009) conducted a cross-sectional study to assess the prevalence of Hypertension and its associated risk factors in the rural areas of Tamil Nadu. Totally 406 individuals (45-60 years) selected by the standard 30 cluster systematic random sampling technique to find out prevalence of Hypertension and its associated risk factors in a rural area of Tamil Nadu. Chi-square test and multiple logistic regressions were employed using SPSS package. The findings revealed that the prevalence of Hypertension was 33% among the sedentary type it was higher (41%). In bivariate analysis many of the independent variables correlated with Hypertension, but in multivariate analysis, only body-mass index, family history and age remained significant.

Oluwatoyin C. Amira, & Njideka U Okubadejo (2009) conducted a study to assess the frequency and pattern of use of complementary and alternative medicine (CAM) in patients with essential Hypertension attending a tertiary Hypertension clinic. 225 consecutive hypertensive patients attending the Hypertension clinic of the Lagos University Teaching Hospital over a 3-month period were interviewed. CAM utilization was assessed using both structured and open-ended questions. There were 90(40%) male and 135(60%) female patients with mean age ± SD was 55.1 ± 12.4 years. 88(39.1%) of the patients used CAM. Amongst the CAM users, the most common herbal product used was garlic (69.3%). Others were native herbs (25%), ginger (23.9%), bitter leaf (Vernonia amygdalina (9.1%), aloe vera (4.5%) and 2.5% used spiritual therapy. The findings revealed that there was a statistically significant difference between CAM users and non CAM users at $P < 0.05$ level.

Section 2.2: Review related to correlation between Hypertension and Stress

Akinwumi O. Owolabi, et al., (2012) conducted a cross-sectional descriptive study to determine the Work-related stress perception and Hypertension amongst health workers of a mission hospital in south-western Nigeria. 324 health workers of the institution were administered the job demand-control questionnaire to assess work stress. Measurements of blood pressure, weight and height were carried out and body mass

indices were calculated. More than a quarter (26.2%) of the subjects perceived themself as stressed at work. The single largest group of hypertensive subjects was seen amongst subjects with work stress. The findings revealed that significant number of health workers in this study are afflicted by work-related stress and perceived work stress was found to be significantly associated with higher Hypertension prevalence.

Gsellhofer, B., et al., (2012) conducted a study to assess the correlation between coping with stress and blood pressure reaction in Germany. Blood pressure behavior was measured noninvasively and continuously before, during and after a mental stress situation in 27 normotensive subjects. Coping strategies were assessed with the Stress verarbeitungs fragebogen (SVF). 2 groups were formed on the basis of the scores in the SVF. The findings stated that Individuals who used coping strategies characterized by controlling the situation directly and constructively, in contrast to probands not using these strategies, exhibited lower blood pressure during the stress situation and a faster return to baseline levels after cessation of stress. In other hand, Subjects using a coping behavior characterized by the use of defense mechanisms such as suppression and denial also determined reduced blood pressure during stress but a significantly delayed return to baseline levels of blood pressure after stress was concluded.

Rodrigo, R., **et al., (2011**) conducted a cross-sectional study to assess the relationship between oxidative stress and essential Hypertension in normotensive and hypertensive subjects at Chile. 31 hypertensive patients and 35 healthy normotensive subjects were selected for the study. All subjects underwent 24-h ambulatory blood pressure monitoring and sampling of blood and urine. Antioxidant enzymes activity, reduced/oxidized glutathione ratio (GSH/GSSG), and lipid peroxidation (malondialdehyde) were determined in erythrocytes. Parameters measured in the plasma of test subjects were plasma antioxidant status, lipid peroxidation (8-isoprostane), plasma vitamin C and E, and the blood pressure modulators renin, aldosterone, endothelin-1 and homocysteine. Daytime systolic and diastolic blood pressures of hypertensives were negatively correlated with plasma antioxidant capacity ($r=-0.46$, $p<0.009$ and $r=-0.48$, $p<0.007$), plasma vitamin C levels ($r=-0.53$, $p<0.003$ and $r=-0.44$, $p<0.02$), erythrocyte activity of antioxidant enzymes, and erythrocyte GSH/GSSG ratio, with hypertensive showing higher levels of oxidative stress. BP showed a positive correlation with both

plasma and urine 8-isoprostane. These results proved that there was a strong association between blood pressure and some oxidative stress-related in Essential Hypertension.

Armario, P., et al., (2010) conducted a study on Blood pressure reactivity to mental stress task as a determinant of sustained Hypertension (SH) after 5 years of follow-up at Spain. The study subjects are 89 patients with grade 1 Hypertension. The mean of follow-up was 5.3 years (S.D 2.1 years). The subjects were classified as hyper-reactors when BP increase was greater than 35 mmHg for systolic BP or greater than 21 mmHg for diastolic BP, according to the results obtained previously in a normotensive control group. In the univariate analysis, the factors associated with the development of SH were age (P=0.0007), diastolic BP (P=0.014) and hyper-reactivity of BP during a stressful interview (P=0.003). In the Cox regression model, after adjusting for gender, age, and office BP, the hyper-reactivity of BP during SH was an independent predictor of development of SH. This study concludes that response of BP to mental stress tasks is useful in predicting SH in young and middle-aged subjects with grade 1 Hypertension.

Sparrenberger, F. et al., (2009) conducted a systematic review of cohort and case–control studies to assess the association between psychosocial stress and Hypertension. Researchers conducted a complete search up to February 2007 in MEDLINE, EMBASE, PSYCINFO and LILACS, through a search strategy that included 8 items to describe the exposure, 6 related to the design of the studies and one term for outcome. The quality was assessed by the Newcastle–Ottawa Quality Assessment Scale. Among 82 studies selected in the second phase, there were 10 cohort studies, 4 case–control studies which include 52049 subjects. The average quality of the studies was 6.6±1.3 in a 9-point scale. 5 out of 7 studies found a significant and positive association between measures of chronic stress and Hypertension, with risk ratios ranging from 0.8 to 11.1. 3 out of 5 studies reported high and significant risks of affective response to stress for Hypertension. The study concludes that chronic stress and particularly the non-adaptive response to stress are more likely causes of sustained elevation of blood pressure.

Suter, P.M., **et al., (2009)** conducted a cross-sectional study on relationship between self-perceived stress and blood pressure in an asymptomatic healthy population, Switzerland. 1666 subjects participated in this study. The individual stress perception and BP were measured using a self-administered questionnaire and visual analogue scales. Individual stress perception was inversely related with the systolic BP (SBP) ($r = -0.12$, $P < 0.001$). No relation was found between the diastolic BP (DBP) and stress perception. Subjects with high normal BP according the JNC V classification showed a lower stress perception than did subjects with normal BP. The study findings revealed that there was an inverse association between the self-perceived stress and SBP.

Section 2.3: Reviews related to Jacobson Progressive Muscle Relaxation Technique on stress and Hypertension

Rojan Jose (2013) conducted a study to assess the effectiveness of JPMR on blood pressure and health related stress level among patients with Hypertension. An evaluator approach with one group pretest –post test design was used. Subjects were 40 patients diagnosed as Hypertension. JPMR was administered for 20 minutes to the patient for 4 days in the morning and evening as 8 sessions. Pre and post intervention BP and stress level was assessed. The result of the study revealed that there was a reduction of BP and stress after the JPMR at $p<0.01$ level.

Alvazian, T.A., & Zaitsev, V.P. (2013) conducted a study to assess the progressive muscle relaxation therapy in essential Hypertension and stress among 171 hypertensive patients, Ethiopia. The analysis of BP dynamic during 6 week revealed that in experimental group, the BP findings was significant at $p<0.001$ and in control group, BP was not significant at $p<0.001$. BP reduction has been found in 62% of patients in the Experimental group and only 12% of patients in the Control group. The study concluded that relaxation therapy was effective in reducing BP and stress.

Yung, P., et al., (2012) conducted an experimental study to evaluate the effectiveness of relaxation training as complementary therapy for Hypertension control and implications of evidenced based medicine among 9 hypertensive Chinese subjects in Hong Kong. The empirical work examined the effects of 3 relaxation therapies for the reduction of high B.P such as progressive muscle relaxation, stretch release relaxation and cognitive imagery relaxation. The results revealed that in the context of the study, all

relaxation therapies can reduce B.P, and the study concluded that stretch release relaxation and progressive muscle relaxation therapies appeared to be more effective in lowering B.P compared to cognitive imagery relaxation.

Asen Georgiev (2012) conducted a study to assess the effectiveness of progressive muscle relaxation (PMR) on level of anxiety within hypertensive client. 64 patients underwent 2 sessions of PMR. On the third session they were randomly allocated to either the PMR or the reading control condition. The State Anxiety Inventory (SAI) was used to assess state anxiety and the Subjective Exercise Experience Scale (SEES) to assess psychological distress and subjective well-being before and after the third session for both groups. The study findings indicates a significant time by group interaction for the SAI and SEES (λ=0.58, $p<0.001$). Effect sizes for PMR were -0.22 for state anxiety, -0.96 for psychological stress, and +1.01 for subjective well-being. This study provides scientific evidence for the utility of PMR in the chronic psychiatric settings for patients with Hypertension.

Palak Patel (2012) conducted an experimental study to assess the Effectiveness of Progressive Muscle Relaxation Therapy on Stress among Staff Nurses Working in Selected Hospitals at Vadodara City. Pre experimental one group pre and post test research design was adopted to achieve the goal of the study by using instrument (demographic data and stress assessment scale among 30 staff nurses). The findings of the study revealed that in pre test most of the nurses 53.3% had moderate stress, 40.0% had mild stress and 6.7% had severe stress. The findings of the post test revealed that most of the nurses had mild stress 73.3 % and no stress 26.7 %. This study concluded that Progressive Muscle Relaxation Therapy is effective in reducing the stress level.

Sheila, S., et al., (2010) conducted a quasi-experimental study to evaluate the effectiveness of progressive muscle relaxation on blood pressure and psychological status among 40 hypertensive subjects in Taiwan. The findings of the study revealed that progressive muscle relaxation training has an immediate effect, reducing the pulse rate 2.35bpm, systolic B.P 5.44 mm of Hg and diastolic B.P 3.48 mmHg after two weeks of training. After 4 weeks of progressive muscle relaxation further decrease in pulse rate 2.9 beats per minute, systolic B.P 5.1 mmHg and diastolic B.P 3.1 mmHg occurred. The study concluded that progressive muscle relaxation significantly lowered patient's

perception on stress and it enhanced patient's perception on health and progressive muscle relaxation is beneficial for patients with essential Hypertension.

Schneider, H.R. (2009) conducted a randomized control trial was conducted to assess the effectiveness of stress reduction by doing progressive muscle relaxation technique among 127 older African Americans in San Francisco. The study findings revealed that progressive muscle relaxation lowered the systolic B.P by 4.7 mm of Hg [P=0.054] and diastolic pressure by 3.3 mm of Hg [P≤0.02]. This study concluded that selected stress reduction techniques demonstrated efficacy in reducing Hypertension.

Section 2.4: Reviews related to flax seed on Hypertension

Delfin Rodriguez-Leyva, et al., (2014) conducted a study to assess the effectiveness of dietary supplementation of flaxseed on level of blood pressure with peripheral artery disease patient. In this prospective, double-blinded, placebo-controlled, randomized trial, patients (110 in total) ingested variety of foods that contained 30 g of milled flaxseed or placebo each day over 6 months. Plasma levels of the ω-3 fatty acid α-linolenic acid and enterolignans increased 2- to 50-fold in the flaxseed-fed group but did not increase significantly in the placebo group. The findings of the study revealed SBP was = 10 mm Hg lower, and DBP was = 7 mm Hg lower in the flaxseed group compared with placebo after 6 months. Patients who entered the trial with a SBP ≥ 140 mm Hg at baseline obtained a significant reduction of 15 mm Hg in SBP and 7 mm Hg in DBP from flaxseed ingestion. The antihypertensive effect was achieved selectively in hypertensive patients. Circulating α-linolenic acid levels correlated with SBP and DBP, and lignan levels correlated with changes in DBP. The study concluded that flaxseed induced one of the most potent antihypertensive effects achieved by a dietary intervention.

Elizabeth Renter (2013) conducted a true experimental study to evaluate the effectiveness of flax seed on high blood pressure treatment in American people. 110 participants were divided into 2 groups. Both groups were instructed to eat baked foods like bagels and muffins throughout the six month study period. Experimental group had baked foods included milled flax seeds, (up to 30 grams) while the control group did not. The findings of the study revealed that decrease of about 15 points from their systolic blood pressure reading in experimental group, and compared with an average 7 point

decrease of diastolic readings in the control group. This study concludes that "Flaxseed induced one of the most potent antihypertensive effects achieved by a dietary intervention."

Udenigwe, C.C. (2010) conducted a study to assess the antioxidant and angiotensin converting enzyme-inhibitory properties of a flaxseed protein-derived high Fischer ratio peptide mixture. 30 subjects with hypertensive patients were selected by random sampling technique. Flaxseed protein-derived high Fischer ratio peptide mixture was given to the subjects for 2 weeks. The findings of the study revealed that the peptide mixture showed potential antihypertensive properties by inhibiting angiotensin I-converting enzyme in a mixed-type inhibition pattern at $p<0.05$. This study concludes that flaxseed peptide mixture could be used to formulate food products with health benefits for hypertensive patients.

Sheila .G West (2010) conducted a study to assess the effects of diets high in walnuts and flax oil on hemodynamic responses to stress and vascular endothelial function. Using a randomized, crossover study design, cardiovascular responses to acute stress were assessed in 20 hypercholesterolemic subjects, a subset of whom also underwent FMD testing (n=12). Participants were fed an average American diet (AAD) and 2 experimental diets that varied in the amount of ALA and linoleic acid (LA) that they contained. The AAD provided 8.7% energy from PUFA. On the LA diet, saturated fat was reduced, and PUFA from walnuts and walnut oil provided 16.4% of energy. On the ALA diet, walnuts, walnut oil, and flax oil provided 17% energy from PUFA. The ALA and LA diets significantly reduced diastolic blood pressure (-2 to -3 mm Hg) and total peripheral resistance (-4%), and this effect was evident at rest and during stress at $p<0.02$. FMD increased (+34%) on the diet containing additional ALA. AVP also increased by 20%, and endothelin-1 was unchanged. The study concluded that the effects of diets high in walnuts and flax oil are beneficial for hypertensive patients.

Bassett, C.M., et al., (2009) conducted experimental and clinical research findings on the cardiovascular benefits of consuming flaxseed. Multiple clinical dietary intervention trials report that consuming flaxseed daily can modestly reduce circulating total cholesterol (TC) by 6%-11% and low-density lipoprotein (LDL) cholesterol by 9%-18% in normolipemic humans and by 5%-17% for TC and 4%-10% for LDL cholesterol

in hyper cholesterolemic patients, as well as lower various markers associated with atherosclerotic cardiovascular disease in humans. Evidence to date suggests that the dietary fiber and (or) lignan content of flaxseed provides the hypocholesterolemic action. The omega-3 ALA found in the flaxseed oil fraction also contributes to the antiatherogenic effects of flaxseed via anti-inflammatory and antiproliferative mechanisms. Dietary flaxseed may also protect against ischemic heart disease by improving vascular relaxation responses and by inhibiting the incidence of ventricular fibrillation.

An Pan, et al., (2009) conducted a Meta-analysis study of the effects of flaxseed interventions on blood lipids. Study quality was assessed by using the Jadad score, and a meta-analysis was conducted. 28 studies were included. Flaxseed interventions reduced total and LDL cholesterol by 0.10 mmol/L and 0.08 mmol/L, respectively; significant reductions were observed with whole flaxseed (-0.21 and -0.16 mmol/L, respectively) and lignan (-0.28 and -0.16 mmol/L, respectively) supplements but not with flaxseed oil. The cholesterol-lowering effects were more apparent in females (particularly postmenopausal women), individuals with high initial cholesterol concentrations, and studies with higher Jadad scores. No significant changes were found in the concentrations of HDL cholesterol and triglycerides. The study concludes that Flaxseed significantly reduced circulating total and LDL-cholesterol concentrations.

Paschos, G.K., (2007) conducted a study to assess the effectiveness of dietary supplementation with flaxseed oil lowers blood pressure in dyslipidaemic patients. They used a prospective, two-group, parallel-arm design to examine the effect of a 12-week dietary supplementation with flaxseed oil, rich in ALA (8 g/day), on blood pressure in middle-aged dyslipidaemic men (n=59). The diet of the control group was supplemented with safflower oil, containing the equivalent n-6 fatty acid (11 g/day linolenic acid (LA); n=28). Arterial blood pressure was measured at the beginning and at the end of the dietary intervention period. Supplementation with ALA resulted in significantly lower systolic and diastolic blood pressure levels compared with LA (P=0.016 and P=0.011, respectively, from analysis of variance (ANOVA) for repeated measures). Researchers observed a hypotensive effect of ALA, which may constitute another mechanism accounting in part for the apparent cardioprotective effect of n-3 fatty acid.

CHAPTER – 3

RESEARCH METHODOLOGY

This chapter describes the methodology adopted in this study to assess the effectiveness of Interventional package on blood pressure and stress level among the clients with Hypertension admitted at selected hospital, Tiruvannamalai.

This study includes Research Approach, Research Design, Variables, Setting, Population, Sample, Sample Size, Sampling Technique, Criteria for Sample Selection, Development and Description of Tool, scoring procedure, content validity, pilot study, reliability of the tool, procedure for data collection and plan for data analysis.

3.1 RESEARCH APPROACH

The research approach used in this study was Quantitative research approach.

3.2 RESEARCH DESIGN

Research design is the researchers over all plans for obtaining answers to hypothesis **(Polit, 2008).**

The research design adopted for this study is pre test and post test design basic experimental design which comes under True experimental design.

Group	Pre-Test	Intervention	Post-Test
Experimental	RE1	×	RE2
Control	RC1	-	RC2

Where,

RE1 - Pre test level of blood pressure and stress in randomized Experimental group.

RE2 - Posttest level of blood pressure and stress in randomized Experimental group.

× - Selected interventional package

RC1 - Pre test level of blood pressure and stress in randomized Control group.

RC2 - Posttest level of blood pressure and stress in randomized Control group.

In this study, the pre assessment of blood pressure and stress level of both experimental group and control group were measured by using sphygmomanometer for blood pressure and stress were assessed using perceived stress 10 item scale followed by implementation of selected interventional package for 15-20 minutes for every day. At the end of the 7th day, the post assessment level of blood pressure and stress was obtained from the clients with Hypertension of experimental group and control group by using the same sphygmomanometer for blood pressure and stress were assessed using perceived stress 10 item scale**.**

3.3 VARIABLES

Independent Variable

The independent variable for the study was selected interventional package includes flax seed and Jacobson progressive muscle relaxation technique.

Dependent Variables

The dependent variables for the study were Blood pressure and stress level.

Extraneous Variables

The extraneous variables were age, sex, marital status, religion, education, occupation, type of physical activity, food pattern, area of residence, type of family, smoking, alcohol, exercise, family history of Hypertension, associated illness, Hypertension duration, treatment for Hypertension and treatment history.

3.4 SETTING OF THE STUDY

The study was conducted in male and female medical ward in Sai Seva yoga Nature Cure Hospital and Research Centre at Tiruvannamalai. It is a 200 bedded hospital with all the medical facility for clients admitted with Hypertension. The average admission for month is 140 clients with Hypertension.

3.5 POPULATION

The population comprises of patients with Hypertension admitted in male and female medical ward at the time of study in Sai Seva Yoga Nature Cure Hospital and Research Centre at Tiruvannamalai.

Target Population

The target population for the study includes all clients with Hypertension.

Accessible Population

Accessible population for the study was clients with Hypertension admitted at Sai Seva Yoga Nature Cure Hospital and Research Centre, Tiruvannamalai.

3.6 SAMPLE

The study sample comprises of clients with Hypertension who satisfy the sample selection criteria of the study.

3.7 CRITERIA FOR SAMPLE SELECTION

3.7.1 Inclusive Criteria

1. Clients who are willing to participate in the study.
2. Clients medically diagnosed as Hypertension by physician.
3. Clients who are between 31-70 years of age.
4. Clients who are able to communicate in Tamil or English.
5. Clients who have been taking antihypertensive treatment.

3.7.2 Exclusive Criteria

1. Clients who have irritable bowel syndrome.
2. Clients who could not respond or follow the commands.
3. Patients who had difficulty in hearing and understanding.

3.8 SAMPLE SIZE

A Sample Size is 60.30 in experimental group and 30 in control group.

3.9 SAMPLING TECHNIQUE

Sample refers to a subject of a population selected to participate in a research study. In this present study, the sample consisted of 60 hospitalized subjects who were having stress and blood pressure, who were admitted in the ward during the period of data collection.

In this study, simple random sampling technique by using lottery method was adopted to select the subjects who met the sampling criteria. Simple random sampling procedure was employed to select the study participants. There were pieces of paper that were written E or C, the word E was used to represent the experimental group, and C was used to represent the control group. Once the piece of paper was chosen, it was not included in the sample again and each participant was allowed to **pick** only once.

3.10 DEVELOPMENT AND DESCRIPTION OF THE TOOL

An instrument in research refers to the tool or equipment used for data collection. It may take the form of observation check list, questionnaires, an interview schedule, a projective desire or some other type of tool for eliciting information. The investigator may use an instrument that has been developed or designed as an original tool or she may take parts of one or more instruments from which she develops a new one.

The tool used for the present study, was an interview / observational schedule. The blood pressure was measured using sphygmomanometer and stress was measured by perceived stress 10 item scale which is a standardized tool. The interview / observational schedule consist of three sections.

Section – A: Demographic variables

This section consists of Demographic data such as age, sex, marital status , religion, education, occupation, type of physical activity, food pattern, area of residence, type of family, smoking, alcohol, exercise, family history of Hypertension, associated illness, Hypertension duration, treatment for Hypertension and treatment history.

Section – B: Tool to assess the level of blood pressure

Blood pressure was determined by using sphygmomanometer.

Scoring Key for Blood Pressure

Joint National Committee (JNC) VII Blood pressure classification is a standard and easy to classify the Hypertension.

Classification of blood pressure (JNC VII)

Category	Systolic blood pressure (mm Hg)	Diastolic blood pressure(mm Hg)
Normal	<120	<80
Pre Hypertension	120-139	80-89
Stage 1	140-159	90-99
Stage 2	≥160	≥100

Section – C: Tool to assess the level of stress

A more precise measure of personal stress can be determined by using a variety of instruments that have been designed to help measure individual stress levels. The first of these is called the **Perceived Stress 10 item Scale.**

Scoring Key for Stress:

Item	Never	Almost Never	Sometimes	Fairly Often	Very Often
POSITIVE **4, 5, 7, & 8**	4	3	2	1	0
NEGATIVE **1, 2, 3, 6, 9, 10**	0	1	2	3	4

SCORES	LEVEL OF STRESS
1-13	Low level of Stress
14-26	Moderate level of Stress
27-40	High level of Stress

3.11 CONTENT VALIDITY

Validity is the degree to which an instrument measures which is intended to measure **(Polit, 2008).**

The content validity of the tool was established on the basis of opinion of 2 Medical experts, 6 Nursing experts specialized in Medical Surgical Nursing and 1 Dietician. Based on the suggestions of the experts changes were made in the tool after consulting with the research guide.

3.12 ETHICAL CONSIDERATION

The ethical principles followed in the study were,

A. Beneficence

a) Freedom from harm and discomfort

Participants were not subjected to unnecessary risks for harm or discomfort during the study period.

b) Protection from exploitation

Participants were assumed that their participation or information provided would not be used against them in any way.

B. Respect for Human Dignity

The investigator followed the second ethical principle of respect for human dignity. It includes the right to determination and the right to self disclosure**.**

a) The Right to self determination

The researcher gave full freedom to the participants to decide voluntarily whether to participate in the study or to withdraw from the study and the right to ask questions.

b) The right to full disclosure

The researcher has fully described the nature of the study, the person's right to refuse participation and the researcher's responsibilities based on which both oral and written informed consent was obtained from the participants

C. Justice

The selection of study participants was completely based on research requirements.

A full privacy was maintained throughout the process of data collection.

D. Confidentiality

The researcher maintained confidentiality of the data provided by the study participants

3.13 PILOT STUDY

Pilot study is a small scale version or trial run designed to test the methods to be used in a larger group, more rigorous study which is sometimes referred to as the parent study **(Polit, 2008).**

Pilot study is a trail for main study to test the reliability appropriateness and feasibility of the study and the tool. The formal permission was obtained from principal of Vignesh Nursing College. The investigator obtained permission from Sai Seva yoga nature cure hospital and Research centre at Tiruvannamalai .The study period 6 days in weeks. The investigator selected 10 subjects by using simple random sampling technique method. 5 samples assigned to experimental group and 5 of them to control group.

The investigator explained about the aims, purpose, advantages of the study to the experimental group and control group. After obtaining the demographic details, pre assessment was done regarding the Hypertension scale and perceived stress 10 item scale. The investigator given the intervention package includes flax seed powder 30gm was given after 2 hours intake of antihypertensive and the PMR was practiced under the supervision of investigator as a group session. PMR consisted of two processes namely tensing and relaxing of muscle groups in the body, tensing for 5 seconds and relaxation for 10 seconds. This technique starting with the forearm and upper arm of the right hand, forearm and upper arm of the left hand, forehead, eyes, cheek, mouth jaw, neck, shoulder, back, chest, stomach, buttocks, right and left upper leg, right and left lower foot for 15-20 minutes to the experimental group at 12pm for the period of 6 days. The post test of pilot study concludes that there is a significant reduction of blood pressure and stress level in experimental group and no significant reduction of blood pressure and

stress level in control group at $p<0.05$. The pilot study revealed that the study was feasible.

3.14 RELIABILITY OF THE TOOL

Reliability is defined as the extent to which the instrument yields the same result on repeated measures. It is thus concerned with consistency, accuracy, stability, and homogeneity.

Reliability of the tool was tested by the investigator and other medical surgical nursing expert personnel who were trained in the use of tools.

The Tamil version of PSS was tested using the inter-rater reliability method. Pearson's product moment correlations was used to obtain the reliability which showed a significant correlation ($r=0.82$). Blood pressure was measured by sphygmomanometer. The reliability of the instrument was established by test retest method. The test retest reliability score for sphygmomanometer was $r = 0.92$. Since these tools were found to be reliable and valid they were used further to proceed with the data collection to the study.

3.15 PROCEDURE FOR DATA COLLECTION

Data collection is the gathering of information needed to address the research problem. The word data means information that is systematically collected in the course of study.

This study was conducted at Sai Seva Yoga Nature Cure Hospital and Research Centre, Tiruvannamalai. The data was collected for a period of 4 weeks in the month of May - Jun 2014. Prior permission from the authorities was sought. The objective purpose and risk of the study was explained and confidentiality was maintained. The investigator gave brief information about self and the purpose of the study to the subjects.

During the data collection procedure the investigator introduced her to the hypertensive clients and established rapport with the subjects. They were assured that no physical or emotional harm would be done in the course of the study.

The study subjects were selected by simple random sampling technique based on sample selection criteria. A total of 60 clients with Hypertension recruited in the study for experimental and control group each group contains 30 subjects. The subjects were made to sit comfortably in a well ventilated room and confidentiality regarding the data was assured. After obtaining their verbal and written informed consent for willingness to participate in the study, the investigator collected the data related to demographic variables and conducted the pretest to assess the level of blood pressure and stress using interview/ observational method in experimental and control group which took around 25-30 min.

Flax seed powder was administered at 10 am after 2 hours intake of antihypertensive medication to the experimental group (once a day) for 7 consecutive days. Progressive muscle relaxation technique was demonstrated to the experimental group participants by the investigator as a group session, each group consisted of 10 members, general instructions for performing PMR and the advantages of PMR were explained, Followed by that PMR was demonstrated by the investigator. Each session of PMR lasted for 15-20 minutes. PMR was not given for the control group and they were requested to follow routine measures. Post test was conducted for the experimental and control groups on the 7^{th} day after intervention. During post test blood pressure and stress were assessed using same instrument used for pretest. The Investigator used the same sphygmomanometer each time for all the participants, on the same hand and same time.

3.16 PLAN FOR DATA ANALYSIS

Data was analysed by using descriptive and inferential statistics

3.16.1 Descriptive Statistics

1. Frequency and percentage distribution used to analyze the demographic variables.
2. Mean and standard deviation used to assess the blood pressure and stress among client with Hypertension.

3.16.2 Inferential Statistics

1. Paired ‘t’ test used to compare the pre and post test level of blood pressure and stress in experimental group and control group.

2. Unpaired ‘t’ test used to compare the pre and post test level of blood pressure and stress between experimental and control group.
3. Karl Pearson Correlation Coefficient ‘r’ used to correlate the blood pressure and stress among clients with Hypertension in experimental group and control group.
4. ANOVA and unpaired ‘t’ used test to associate the pre and post test level of blood pressure and stress with selected demographic variables among clients with Hypertension experimental and control group.

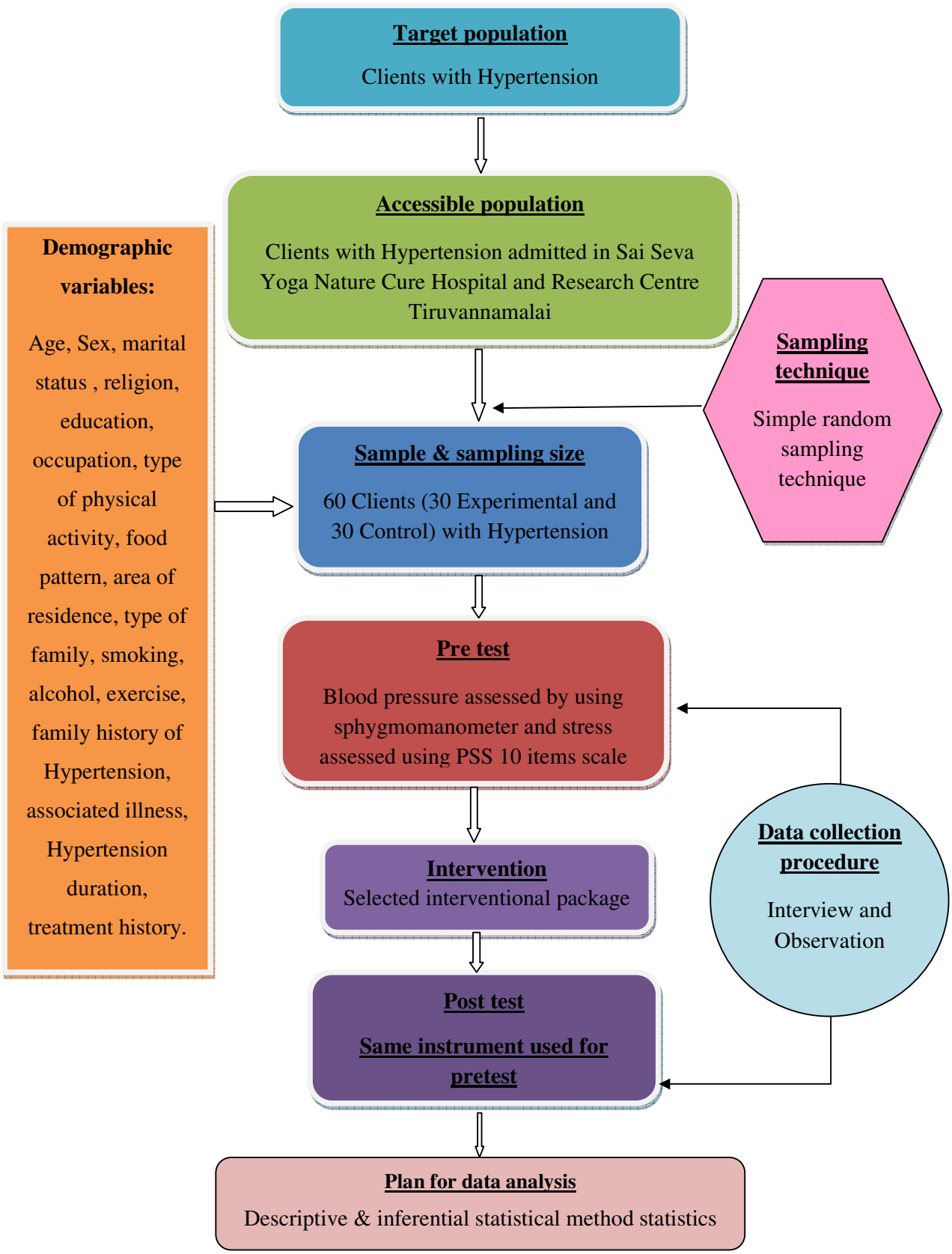

FIG.3.15.1: SCHEMATIC REPRESENTATION OF RESEARCH DESIGN

CHAPTER – 4

DATA ANALYSIS AND INTERPRETATION

This chapter deals with the analysis and interpretation of the data collected from 60 Hypertensive clients. The data collected was organized, tabulated and analyzed according to the objectives. The findings based on the descriptive and inferential statistical analysis are presented under the following sections.

ORGANIZATION OF DATA

Section 4.1: Description of demographic variables of the client with Hypertension in experimental and control group.

Section 4.2: Assessment of pre and post test level of blood pressure and stress in experimental and control group.

Section 4.3: Comparison of pre and post test level of blood pressure and stress in experimental and control group.

Section 4.5: Comparison of pre and post test level of blood pressure and stress between experimental and control group.

Section 4.6: Correlate the post test level of blood pressure and stress in experimental and control group.

Section 4.7: Association of pre and post mean difference level of blood pressure and stress with their selected demographic variables among experimental and control group.

SECTION4.1: DESCRIPTION OF DEMOGRAPHIC VARIABLES OF THE CLIENTS HYPERTENSION IN EXPERIMENTAL AND CONTROL GROUP.

Table 4.1.1: Frequency and percentage distribution of demographic variables in respect to Age, Gender, Religion and Marital status in experimental and control group.

N=60

S.No.	Demographic Variables	Experimental Group		Control Group	
		f	%	f	%
1.	**Age in years**				
	31 – 40	3	10.00	3	10.00
	41 – 50	11	36.67	10	33.33
	51 – 60	11	36.67	13	43.33
	61 – 70	5	16.67	4	13.33
2	**Gender**				
	Male	15	50.00	16	53.33
	Female	15	50.00	14	46.67
3	**Religion**				
	Hindu	24	80.00	24	80.00
	Muslim	4	13.33	4	13.33
	Christian	2	6.67	2	6.67
	Others	0	0.00	0	0.00
4	**Marital Status**				
	Single	12	40.00	-	-
	Married	13	43.33	26	86.67
	Divorced	1	3.33	1	3.33
	Widow & Widower	4	13.33	3	10.00

Table 4.1.1 shows the frequency and percentage distribution of demographic variables with respect to Age, Sex, Religion and Marital Status in experimental and control group.

In Experimental group, with regard to age 11(36.67%) were between the age group of 41-50years, 11(36.67%) were between the age group of 51-60, 5(16.67%) were between the age group of 61-70 and 3(10%) were age group of 31-40years.

In experimental group, with regard to gender 15(50%) were male and 15(50%) were female.

In experimental group, with regard to religion majority of the subjects 24(80%) were Hindus, 4(13.33%) were Muslims and 2(6.67%) were Christians.

In experimental group, with regard to marital status 13(43.33%) were married, 12(40%) were single, 4(13.33%) were widow/widower and 1(3.33%) was divorced.

In control group, with regard to 13(43.33%) were between the age group of 51-60, 10(33.33%) were between the age group of 41-50years, 4(13.33%) were between the age group of 61-71 and 3(10%) were in the age group of 31-40years.

In control group, with regard of gender 16(53.33%) were male and 14(46.67%) were female.

In control group, with regard to religion majority of the subjects 24(80%) were Hindus, 4(13.33%) were Muslims and 2(6.67%) were Christians.

In control group, with regard to marital status majority of the subjects 26(86.67%) were married, 3(10.00%) were widow and widower and 1(3.33%) were divorced.

Table 4.1.2: Frequency and percentage distribution of demographic variables in respect to Education, Occupation status, Monthly income, Type of physical activity, Area of Residence, Type of family and dietary pattern in experimental and control group.

N=60

S.No.	Demographic Variables	Experimental Group		Control Group	
		f	%	f	%
5	**Educational Status**				
	Non-literate	1	3.33	3	10.00
	Primary education	2	6.67	3	10.00
	Secondary education	10	33.33	12	40.00
	Graduate	17	56.67	12	40.00
6	**Occupational Status**				
	Unemployed	2	6.67	1	3.33
	Unskilled worker	6	20.00	6	20.00
	Semi skilled worker	5	16.67	4	13.33
	Skilled worker	6	20.00	10	33.33
	Professional worker	7	23.33	6	20.00
	Others	4	13.33	3	10.00
7	**Family Monthly Income**				
	Rs.<10,000	19	63.33	20	66.67
	Rs.10,001 - 20,000	6	20.00	9	30.00
	Rs.20,001 - 30,000	3	10.00	-	-
	Rs.>30,000	2	6.67	1	3.33
8	**Type of physical activity**				
	Sedentary	-	-	-	-
	Mild	8	26.67	8	26.67
	Moderate	18	60.00	18	60.00
	Heavy	4	13.33	4	13.33
9	**Area of Residence**				
	Urban	11	36.67	12	40.00
	Rural	19	63.33	18	60.00
10	**Type of family**				
	Nuclear	18	60.00	20	66.67
	Joint family	10	33.33	8	26.67
	Extended family	2	6.67	2	6.67
11	**Dietary pattern**				
	Vegetarian	5	16.67	6	20.00
	Non-vegetarian	25	83.33	24	80.00

Table 4.1.2 shows the frequency and percentage distribution of demographic variables with respect to Education, Occupation status, Monthly income, Type of

physical activity, Area of residence, Type of family and dietary pattern in experimental and control group.

In experimental group, with regard to educational status 17(56.67%) were graduates, 10(33.33%) had completed secondary school education, 2(6.67%) had completed primary education and 1(3.33%) was non literate.

In experimental group, with regard to occupation the majority of the subjects 7(23.33%) were highly skilled, 6(20.00%) were skilled worker, 6(20.00%) were unskilled worker, 5(16.67%) were semiskilled worker, 2(6.67%) were unemployed and 4(13.33%) belongs to other category.

In experimental group, with regard to family monthly income the majority of the subjects 19(63.33%) had a monthly income of Rs. < 10, 000, 6(20.00%) had a monthly income of Rs.10, 001-20,000, 3(10.00%) had a monthly income of Rs.20, 001-30,000 and 2(6.67%) had a monthly income of Rs.>30,000.

In experimental group, with regard to type of physical activity the majority of the subjects 18(60.00%) were moderate activity, 8(26.67%) were mild activity, 4(13.33%) were heavy activities.

In experimental group, with regard to area of residence the majority of the subjects 19(63.33%) belonged to rural area, and 11(36.67%) belonged to urban area.

In experimental group, with regard to type of family the majority of the subjects 18(60.00%) were living as a nuclear family, 10(33.33%) were living as a joint family and 2(6.67%) were as an extended family.

In experimental group, with regard to dietary pattern the majority of the subjects 25(63.33%) were non-vegetarian and 5(16.67%) were vegetarian.

In control group, with regard to educational status 12(40.00%) completed graduates, 12(40.00%) completed secondary school education, 3(10.00%) completed primary school education and 3(10.00%) were non literates.

In control group, with regard to occupation 10(33.33%) were skilled worker, 6(20.00%) were professional worker, 6(20.00%) were unskilled worker, 4(13.33%) were semiskilled worker, 1(3.33%) were unemployed and 3(10.33%) were other worker.

In control group with regard to monthly income of the family the majority of the subjects 20(66.67%) had a monthly income of <RS.10, 000, 9(30.00%) had a monthly income of Rs.10, 001-20,000 and 1(3.33%) had a monthly income of Rs. >30,000.

In control group, with regard to type of physical activity the majority of the subjects 18(60.00%) were moderate activity, 8(26.67%) were mild activity, 4(13.33%) were heavy activity.

In control group, with regard to area of residence the majority of the subjects 18(60.00%) belonged to rural area and 12(40.00%) belonged to urban area.

In control group, with regard to type of family the majority of the subjects 20(66.67 %) were living as a nuclear family, 8(26.67%) were living as a joint family and 2(6.67%) were living as an extended family.

In control group, with regard to dietary pattern the majority of the subjects 24(80%) were non-vegetarian and 6(20%) were vegetarian.

Table 4.1.3: Frequency and percentage distribution of demographic variables in respect to Habit of smoking, Consumption of alcohol, Practice of regular exercise, Duration of treatment and Family history of Hypertension in experimental and control group.

N=60

S.No.	Demographic Variables	Experimental Group		Control Group	
		f	%	f	%
12	**Habit of smoking**				
	No	21	70.00	20	66.67
	Yes	9	30.00	10	33.33
13	**Consumption of alcoholic**				
	No	24	80.00	20	66.67
	Yes	6	20.00	10	33.33
14	**Do you practice regular exercise**				
	No	8	26.67	21	70.00
	Yes	22	73.33	9	30.00
15	**Duration of disease**				
	Below 1 year	1	3.33	1	3.33
	1 year - 2 years	11	36.67	14	46.67
	3 years - 4 years	12	40.00	10	33.33
	Above 4 years	6	20.00	5	16.67
16	**Family history of Hypertension**				
	No	14	46.67	16	53.33
	Yes	16	53.33	14	46.67

Table 4.1.3 shows the frequency and percentage distribution of demographic variables with respect to Habit of smoking, consumption of alcohol, practice of regular exercise, duration of treatment and family history of Hypertension in experimental and control group.

In experimental group, with regard to smoking habits the majority of the subjects 21(70.00%) were non smoker and 9(30.00%) were smoker.

In experimental group, with regard to consumption of alcohol the majority of the subjects 24(80.00%) were non-alcoholic and 6(20%) were alcoholic.

In experimental group, with regard to regular exercise the majority of the subjects 22(73.33%) practiced regular exercise and 8(26.67%) had not practiced regular exercise.

In experimental group, with regard to duration of disease 12(40.00%) were between 3 years to 4 years, 11(36.67%) were between 1 year to 2 years, 6(20.00%) were above 4 years and 1(3.33%) was below 1 year.

In experimental group, with regard to family history of Hypertension 16(53.33%) had family history of Hypertension and 14(46.67%) had no family history of Hypertension.

In control group, with regard to smoking habits the majority of the subjects 20(66.67%) were non-smoker and 10(33.33%) were smoker.

In control group, with regard to consumption of alcohol the majority of the subjects 20(66.67%) were non-alcoholic and 10(33.33%) were alcoholic.

In control group, with regard to regular exercise the majority of the subjects 21(70.00%) practiced regular exercise and 9(30.00%) not practiced regular exercise.

In control group, with regard to duration of disease 14(46.67%) were 1 year to 2 years, 10(33.33%) were 3 years to 4 years, 5(16.67%) were above 4 years and 1(3.33%) were below 1 year.

In control group, with regard to family history of Hypertension 16(53.33%) had no history of Hypertension in family and 14(46.67%) had family history of Hypertension.

Table 4.1.4: Frequency and percentage distribution of demographic variables in respect to Treatment for Hypertension, Associated illness and Duration of treatment in experimental and control group.

N=60

S.No.	Demographic Variables	Experimental Group		Control Group	
		f	**%**	**F**	%
17	**Treatment of Hypertension**				
	Regular treatment	27	90.00	25	83.33
	Irregular treatment	3	10.00	5	16.67
18	**Associated Illness**				
	No illness	13	43.33	12	40.00
	Cardiac disease	3	10.00	4	13.33
	Diabetes mellitus	12	40.00	10	33.33
	Others	2	6.67	4	13.33
19	**Duration of treatment**				
	Below 1 year	1	3.33	1	3.33
	1 year - 2 years	11	36.67	12	40.00
	3 years - 4 years	12	40.00	12	40.00
	Above 4 years	6	20.00	5	16.67

Table 4.1.4 shows the frequency and percentage distribution of demographic variables with respect to treatment for Hypertension, associated illness and duration of treatment in experimental and control group.

In experimental group, with regard to treatment of Hypertension the majority of the subjects 27(90.00%) were on regular treatment and 3(10.00%) were on irregular treatment.

In experimental group, with regard to associate illness 13(43.33%) had no illness, 12(40.00%) had diabetes mellitus, 3(10.00%) had cardiac disease and remaining 2(6.67%) had other illness.

In experimental group, with regard to duration of treatment 12(40.00%) were between 3 years to 4 years of treatment, 11(36.67%) were between 1 year to 2 years of

treatment, 6(20.00%) were above 4 years of treatment and 1(3.33%) was below 1 year duration of treatment.

In control group, with regard to treatment of Hypertension the majority of the subjects 25(83.33%) were on regular treatment and 5(16.67%) were on irregular treatment.

In control group, with regard to associate illness 12(40.00%) had no illness, 10(33.33%) had diabetes mellitus, 4(13.33%) had cardiac disease and remaining 4(13.33%) had other illness.

In control group, with regard to duration of treatment 12(40.00%) were between 3 years to 4 years, 12(40.00%) were between 1 year to 2 years, 5(16.67%) were above 4 years and 1(3.33%) was below 1 year.

SECTION 4.2: ASSESSMENT LEVEL OF BLOOD PRESSURE AND STRESS AMONG EXPERIMENTAL AND CONTROL GROUP.

n=30

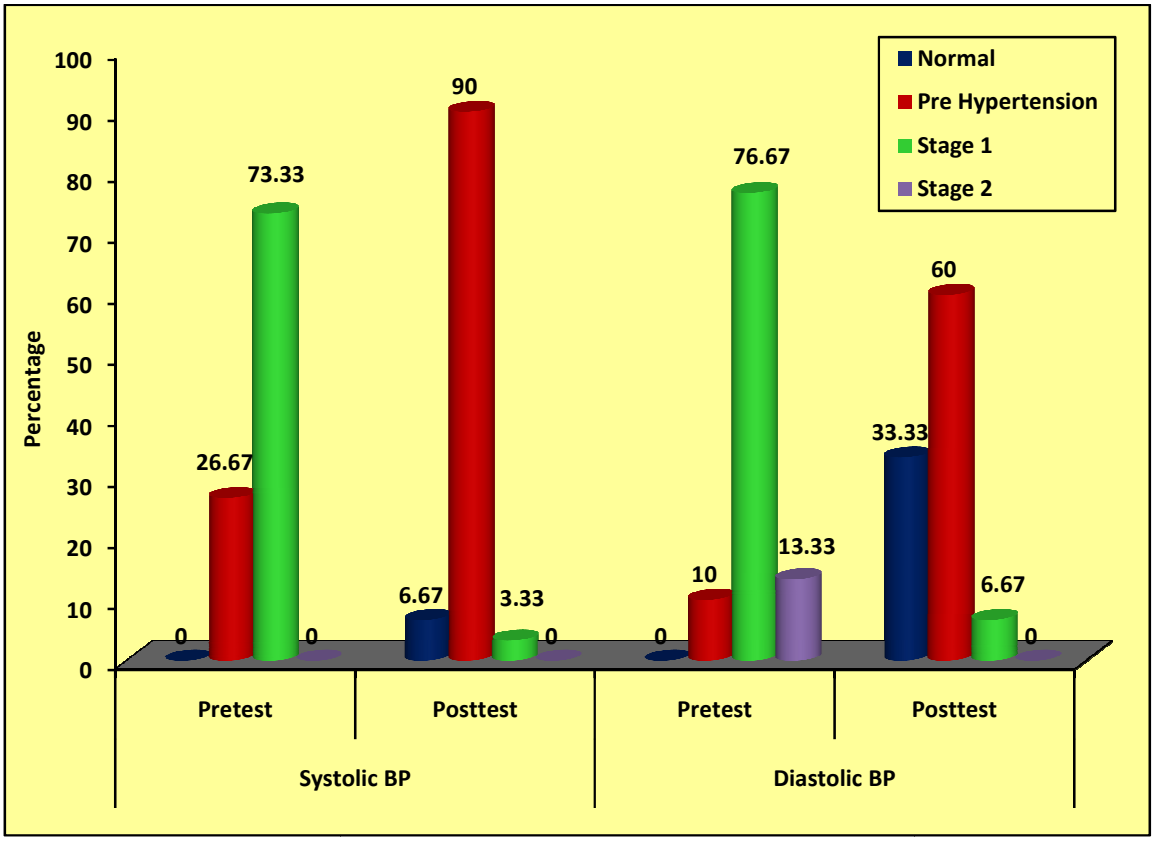

Figure 4.2.1: Percentage distribution of pre and post test level of blood pressure in experimental group

Figure 4.2.1 reveals the percentage distribution of pre and post test level of blood pressure in the experimental group.

The analysis of pretest level of systolic blood pressure in experimental group, revealed that 22(73.33%) had stage 1 Hypertension and 8(26.67%) had prehypertension.

The analysis of pretest level of diastolic blood pressure in experimental group, revealed that 23(76.67%) had stage 1 Hypertension, 4(13.33%) had stage 2 Hypertension and 3(10%) had prehypertension.

The analysis of post test level of systolic blood pressure in experimental group, revealed that 27(90.0%) had prehypertension, 2(6.67) had normal blood pressure and 1(3.33%) had stage 1 Hypertension.

The analysis of post test level of diastolic blood pressure in experimental group, revealed that 18(60.0%) had prehypertension, 10(33.33) had normal blood pressure and 2(6.67%) had stage 1 Hypertension.

n=30

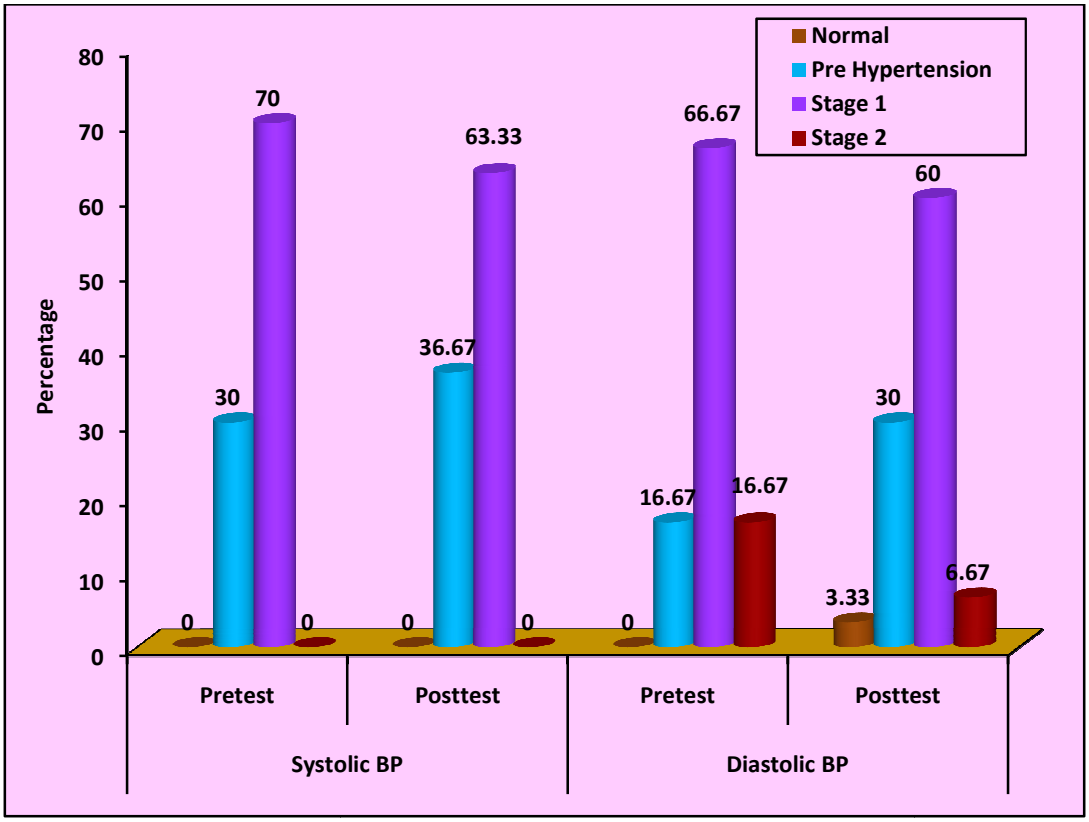

Figure 4.2.2: Percentage distribution of pre and post test level of blood pressure in control group

Figure 4.2.2 shows the percentage distribution of pre and post test level of blood pressure in control group.

The analysis of pretest level of systolic blood pressure in control group shows that 21(70.0%) had stage 1 Hypertension and 9(30.0%) had prehypertension.

The analysis of pretest level of diastolic blood pressure in control group, shows that 20(66.67%) had stage 1 Hypertension, 5(16.67%) had stage 2 Hypertension and 5(16.67%) had prehypertension.

The analysis of post test level of systolic blood pressure in control group, shows that 19(63.33%) had stage 1 Hypertension and 11(36.67%) had prehypertension.

The analysis of post test level of diastolic blood pressure in control group, shows that 18(60.0%) had stage 1 Hypertension, 9(30.0%) had prehypertension, 2(6.67%) had stage 2 Hypertension and 1(3.33%) had normal blood pressure.

N=60

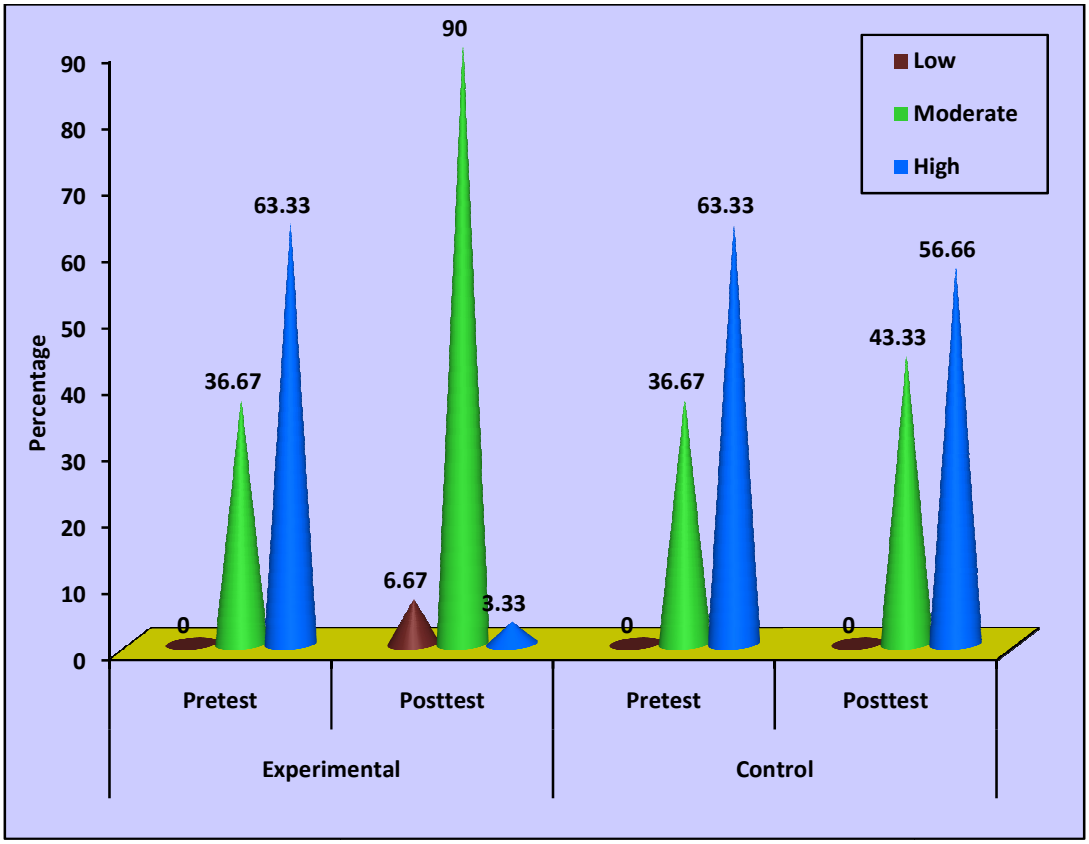

Figure 4.2.3: Percentage distribution of pre and post test level of stress among experimental and control group

Figure 4.2.3 shows the Percentage distribution of pre and post test level of stress among experimental and control group.

The analysis of pretest level of stress in experimental group, shows that 19(63.33%) had high level of stress and 11(36.67%) had moderate level of stress.

The analysis of pretest level of stress in control group, shows that 19(63.33%) had high and 11(36.67%) had moderate level of stress.

The analysis of post test level of stress in experimental group, shows that 27(90.0%) had moderate level of stress, 2(6.67%) had low level of stress and 1(3.33%) had high level of stress.

The analysis of post test level of stress in control group, shows that 17(56.67%) had high level of stress and 13(43.33%) had moderate level of stress.

SECTION 4.3: COMPARISON OF PRE AND POST TEST LEVEL OF BLOOD PRESSURE AND STRESS IN EXPERIMENTAL AND CONTROL GROUP.

Table 4.3.1: Comparison of pre and post test level of blood pressure in experimental group.

n=30

S.No.	BP	Assessment	Mean	S.D	Paired 't' Value
1	Systolic	Pretest	141.27	7.27	t = 16.695***
		Post Test	127.13	6.57	p = 0.000, S
2	Diastolic	Pretest	92.40	6.84	t = 11.164***
		Post Test	77.20	6.61	p = 0.000, S

***p<0.001, S – Significant

Table 4.3.1 shows the Comparison of pre and post test level of blood pressure in experimental group.

The pretest mean value of SBP was 141.27 with S.D 7.27 and the post test mean value of SBP was 127.13 with S.D 6.57. The pretest mean value of DBP was 92.40 with S.D 6.84 and the post test mean value of systolic BP was 77.20 with S.D 6.61.

The calculated paired 't' value of t = 16.695 for SBP and t= 11.164 for DBP was found to be statistically significant at p<0.001 level.

This clearly shows that the implementation of selected interventional package on level of blood pressure among client with Hypertension had significant reduction in their post test level of blood pressure among subjects with Hypertension in experimental group.

Table 4.3.2: Comparison of pre and post test level of blood pressure in control group.

n=30

S.No.	BP	Assessment	Mean	S.D	Paired 't' Value
1	Systolic	Pretest	142.53	6.52	t = 1.980
		Post Test	142.20	6.37	p = 0.057, N.S
2	Diastolic	Pretest	92.47	5.67	t = -0.891
		Post Test	92.73	5.59	p = 0.380, N.S

N.S – Not Significant

Table 4.3.2 shows the comparison of pre and post test level of systolic and diastolic BP in control group.

The pretest mean value of SBP was 141.27 with S.D 6.52 and the post test mean value of SBP was 142.20 with S.D 6.37. The pretest mean value of DBP was 92.47 with S.D 5.67 and the post test mean value of DBP was 92.73 with S.D 5.59.

The calculated paired 't' value of t = 1.980 for SBP and t= -0.891 for DBP was not found to be statistically significant.

Table 4.3.3: Comparison of pretest and post test level of stress in experimental and control group.

N=60

S.No.	Group	Stress	Mean	S.D	Paired 't' Value
1	Experimental	Pretest	28.03	3.88	t = 12.623***
		Post Test	19.86	2.92	p = 0.000, S
2	Control	Pretest	28.13	3.44	t = 1.795
		Post Test	27.93	3.38	p = 0.083, N.S

***p<0.001, S – Significant, N.S – Not Significant

Table 4.3.3 shows the comparison of pretest and post test level of stress in experimental and control group.

In experimental group the pretest mean value of stress was 28.03 with S.D 3.88 and the post test mean value of stress was 19.86 with S.D 2.92. The calculated paired 't' value of t = 12.623 was found to be statistically significant at p<0.001 level.

Where as in control group the pretest mean value of stress was 28.13 with S.D 3.44 and the post test mean value of stress was 27.93 with S.D 3.38. The calculated paired 't' value of t= 1.795 was not found to be statistically significant at p<0.001 level.

This clearly shows that the implementation of selected interventional package on level of stress among client with Hypertension had significant reduction in their post test level of stress in experimental group.

SECTION 4.4: COMPARISON OF PRE AND POST TEST LEVEL OF BLOOD PRESSURE AND STRESS AMONG EXPERIMENTAL AND CONTROL GROUP.

Table 4.4.1: Comparison of pretest level of blood pressure between experimental and control group.

N=60

S.No.	Pretest BP	Group	Mean	S.D	Unpaired 't' Value
1	Systolic	Experimental	141.27	7.27	t = 0.711
		Control	142.53	6.52	p = 0.480, N.S
2	Diastolic	Experimental	92.40	6.84	t = 0.041
		Control	92.47	5.67	p = 0.967, N.S

***p<0.001, N.S – Not Significant

Table 4.4.1 shows the comparison of pretest level of blood pressure between the experimental and control group.

When comparing the pre test level of SBP between the experimental and control group, the pre test mean value of SBP in the experimental group was 141.27 with S.D 7.27 and the pre test mean value of SBP in the control group was 142.53 with S.D 6.52. The calculated unpaired 't' value of t = 0.711 was not found to be statistically significant.

When comparing the pre test level of DBP between the experimental and control group, the pre test mean value of DBP in the experimental group was 92.40 with S.D 6.84 and the pre test mean value of DBP in the control group was 92.47 with S.D 5.67. The calculated unpaired 't' value of t = 0.041 was not found to be statistically significant.

This clearly indicates that there was no significant difference in the pretest level of Hypertension between experimental and control group.

Table 4.4.2: Comparison of post test level of blood pressure between the experimental and control group.

N=60

S.No.	Post test BP	Group	Mean	S.D	Unpaired 't' Value
1	Systolic	Experimental	127.13	6.57	t = 9.011***
		Control	142.20	6.37	p = 0.000, S
2	Diastolic	Experimental	77.20	6.61	t = 9.820***
		Control	92.73	5.59	p = 0.00, S

***p<0.001, S – Significant

Table 4.4.2 shows comparison of post test level of blood pressure between the experimental and control group.

When comparing the post test level of SBP between the experimental and control group, the post test mean value of SBP in the experimental group was 127.13 with S.D 6.57 and the post test mean value of SBP in the control group was 142.20 with S.D 6.37. The calculated unpaired 't' value of t = 9.011 was found to be statistically significant at p<0.001 level.

When comparing the post test level of DBP between the experimental and control group, the post test mean value of DBP in experimental group was 77.20 with S.D 6.61 and the post test mean value of DBP in control group was 92.73 with S.D 5.59. The calculated unpaired 't' value of t = 9.820 was found to be statistically significant at p<0.001 level.

This clearly shows that the implementation of selected interventional package on level of blood pressure among clients with Hypertension had significant reduction in their post test level of blood pressure among clients with Hypertension in experimental group than the clients with Hypertension in the control group.

Table 4.4.3: Comparison of pretest and post test level of stress between the experimental and control group.

N=60

S.No.	Stress	Group	Mean	S.D	Unpaired 't' Value
1	Pretest	Experimental	28.03	3.88	t = 0.106
		Control	28.13	3.44	p = 0.916, N.S
2	Post Test	Experimental	19.86	2.92	t = 9.885***
		Control	27.93	3.38	p = 0.00, S

***p<0.001, S – Significant, N.S – Not Significant

Table 4.4.3 shows the comparison of pretest and post test level of stress between the experimental and control group.

When comparing the pre test level of stress between the experimental and control group, the pre test mean value of stress in experimental group was 28.03 with S.D 3.88 and the pre test mean value of stress in control group was 28.13 with S.D 3.44. The calculated unpaired 't' value of t = 0.106 was not found to be statistically significant.

When comparing the post test level of stress among clients with Hypertension between the experimental and control group, the post test mean value of stress in experimental group was 19.86 with S.D 2.92 and the post test mean value of stress in control group was 27.93 with S.D 3.38. The calculated unpaired 't' value of t = 9.885 was found to be statistically significant at p<0.001 level.

This clearly shows that the implementation of selected interventional package on level of stress among clients with Hypertension in the experimental group had significant reduction in their post test level of stress than clients with Hypertension in control group.

SECTION 4.5: CORRELATE THE POST TEST LEVEL OF BLOOD PRESSURE AND STRESS IN EXPERIMENTAL AND CONTROL GROUP.

Table 4.5.1: Correlation between post test level of blood pressure and stress in experimental group.

n=30

S.No.	Post Test	Variables	Mean	S.D	'r' Value
1	Experimental	Systolic BP	127.13	6.57	r = 0.475**
		Stress	19.86	2.92	p = 0.008, S
2	Experimental	Diastolic	77.20	6.61	r = 0.465**
		Stress	19.86	2.92	p = 0.010, S

**p<0.01, S – Significant

Table 4.5.1 shows the correlation between post test level of blood pressure and stress in experimental group.

While analyzing the post test SBP value, the mean value was 127.13 with S.D 6.57 and the post test mean stress value was 19.86 with S.D 2.92. The calculated Karl Pearson's Correlation value of r = 0.475 shows a positive correlation which was found to be statistically significant at p<0.01 level.

While analyzing the post test DBP value, the mean value was 77.20 with S.D 6.61 and the post test mean stress value was 19.86 with S.D 2.92. The calculated 'r' value was r = 0.465 shows a positive correlation which was found to be statistically significant at p<0.01 level.

This clearly indicates that when the level of BP decreases in the post test the stress level of the clients with Hypertension also decreases.

Table 4.5.2: Correlation between post test level of blood pressure and stress in control group.

n=30

S.No.	Post Test	Variables	Mean	S.D	'r' Value
1	Control	Systolic BP	142.20	6.37	r = 0.231
		Stress	27.93	3.38	p = 0.220, N.S
2	Control	Diastolic	92.73	5.59	r = 0.374
		Stress	27.93	3.38	p = 0.042, S*

*p<0.05, S – Significant, N.S – Not Significant

Table 4.5.2 projects the correlation between post test level of blood pressure and stress in control group.

While analyzing the post test SBP value, the mean value was 142.20 with S.D 6.37 and the post test mean stress value was 27.93 with S.D 3.38 .The calculated 'r' Value was r = 0.231 shows a positive correlation but was not found to be statistically significant.

While analyzing the post test DBP value, the mean value was 92.73 with S.D 5.59 and the post test mean stress value was 27.93 with S.D 3.38 .The calculated 'r' value was r = 0.374 shows a positive correlation which was found to be statistically significant at p<0.05 level.

SECTION 4.6: ASSOCIATION OF PRE AND POST TEST MEAN DIFFERENCE LEVEL OF BLOOD PRESSURE AND STRESS WITH THEIR SELECTED DEMOGRAPHIC VARIABLES AMONG EXPERIMENTAL AND CONTROL GROUP.

Table 4.6.1: The associations of pre and post test mean difference level of systolic blood pressure with their selected demographic variables in experimental group.

n=30

S.No.	Demographic Variables	Pretest		Post Test		Mean Diff.		Chi square Value
		Mean	S.D	Mean	S.D	Mean	S.D	
1	**Occupational Status**							
	Unemployed	140.00	14.14	125.00	7.07	15.00	7.07	
	Unskilled	140.33	5.57	127.66	3.88	12.66	2.06	F = 3.376
	Semi skilled	139.60	8.04	129.20	6.57	10.40	6.54	p = 0.019
	Skilled	142.00	8.09	127.33	7.33	14.66	3.26	S*
	Highly skilled	144.50	7.07	126.25	9.16	18.25	3.10	
	Others	136.66	5.77	126.00	5.29	10.66	1.15	
2	**Family history of Hypertension**							t = 2.158
	No	140.28	7.76	128.00	6.56	12.28	4.35	p = 0.039
	Yes	142.12	6.94	126.37	6.70	15.75	4.37	S*

*p<0.05, S – Significant

Table 4.6.1 shows the associations of mean differed value of systolic blood pressure among clients with Hypertension with their selected demographic variables in experimental group.

It was evident from the above table that there was a statistical significant association of level of systolic blood pressure with occupation and family history of Hypertension at p<0.05 level and the other demographic variables had not shown statistically significant association with the mean differed value of systolic blood pressure among clients with Hypertension in experimental group.

Table 4.6.2: The associations of pre and post test mean difference level of diastolic blood pressure among clients with Hypertension with their selected demographic variables in experimental group.

n=30

S.No.	Demographic Variables	Pretest		Post Test		Mean Diff.		ANOVA/ Unpaired 't' Value
		Mean	S.D	Mean	S.D	Mean	S.D	
1	**Marital Status**							F = 6.554 p = 0.002 S**
	Single	89.83	7.97	80.16	6.35	9.66	4.73	
	Married	95.07	4.36	75.23	6.80	19.84	6.90	
	Divorced	100.00	-	78.00	-	22.00	-	
	Widow & Widower	89.50	7.37	74.50	5.25	15.00	5.77	
2	**Do you practice regular exercise**							t = 2.351 p = 0.036 S*
	No	89.25	9.91	79.00	8.41	10.25	6.96	
	Yes	93.54	5.16	76.54	5.92	17.00	6.92	

*p<0.05, **p<0.01, S – Significant

Table 4.6.2 represents associations of mean differed value of diastolic blood pressure among clients with Hypertension with their selected demographic variables in experimental group.

It was evident from the above table that there was a statistical significant association of level of diastolic blood pressure with marital status and regular exercise at p<0.01 and p<0.05 level respectively and the other demographic variables had not shown statistically significant association with the mean differed value of diastolic blood pressure among clients with Hypertension in experimental group.

Table 4.6.3: Associations of pre and post test mean difference level of stress among clients with Hypertension with their selected demographic variables in experimental group.

n=30

S.No.	Demographic Variables	Pretest		Post Test		Mean Diff.		ANOVA/ Unpaired 't' Value
		Mean	S.D	Mean	S.D	Mean	S.D	
1	**Educational Status**							
	Non-literate	32.00	-	18.00	-	14.00	-	F = 3.600 p = 0.027 S*
	Primary school education	29.50	6.36	20.00	2.82	9.50	3.53	
	Secondary school education	28.90	2.96	19.00	3.01	9.90	3.92	
	Graduate	27.11	4.15	20.47	2.96	6.64	2.57	
2	**Type of physical activity**							
	Sedentary	-	-	-	-	-	-	F = 3.832 p = 0.034 S*
	Mild	28.12	3.22	19.50	3.66	8.62	4.17	
	Moderate	27.44	4.35	20.33	2.84	7.11	2.92	
	Heavy	30.50	1.91	18.50	1.00	12.00	2.30	

*p<0.05, S – Significant

Table 4.6.3 represents the associations of mean differed value of stress among clients with Hypertension with their selected demographic variables in experimental group.

It was evident from the above table that there was a statistical significant association of level of stress with education status and physical activity at p<0.05 and there was no statistical significance association with other demographic variables among clients with Hypertension in experimental group.

Table 4.6.4: Association of pre and post test mean difference level of systolic blood pressure among clients with Hypertension with their selected demographic variables in control group.

n=30

S.No.	Demographic Variables	Pretest		Post Test		Mean Diff.		ANOVA/ Unpaired 't' Value
		Mean	S.D	Mean	S.D	Mean	S.D	
1	**Marital Status**							
	Single	142.66	7.04	142.50	6.82	0.16	0.57	F = 1.563 p = 0.222 N.S
	Married	144.00	5.41	143.53	4.97	0.46	1.19	
	Divorced	130.00	-	128.00	-	2.00	-	
	Widow & Widower	140.50	6.60	140.50	6.60	0.00	0.00	
2	**Type of physical activity**							
	Sedentary	-	-	-	-	-	-	F = 1.337 p = 0.280 N.S
	Mild	139.25	6.13	139.25	6.13	0.00	0.00	
	Moderate	144.33	6.44	143.77	6.35	0.55	1.14	
	Heavy	141.00	6.00	141.00	6.00	0.00	0.00	

N.S – Not Significant

Table 4.6.4 shows the association of mean differed value of systolic blood pressure among clients with Hypertension with their selected demographic variables in control group.

It was evident from the above table that there was no statistically significant association of mean differed value of systolic blood pressure with demographic variable of clients with Hypertension in control group.

Table 4.6.5: Association of pre and post test mean difference level of diastolic blood pressure among clients with Hypertension with their selected demographic variables in control group.

n=30

S.No.	Demographic Variables	Pretest		Post Test		Mean Diff.		ANOVA/ Unpaired 't' Value
		Mean	S.D	Mean	S.D	Mean	S.D	
1	**Occupational Status**							
	Unemployed	85.00	7.07	85.00	7.07	0.00	0.00	
	Unskilled	96.66	3.72	97.66	1.96	-1.00	2.44	F = 0.449
	Semi skilled	90.80	4.38	90.40	3.57	0.40	0.89	p = 0.809
	Skilled	91.00	6.66	91.00	6.66	0.00	0.00	N.S
	Professional	94.50	5.42	95.00	5.01	-0.50	2.32	
	Others	89.33	1.15	89.33	1.15	0.00	0.00	

N.S – Not Significant

Table 4.6.5 shows the association of mean differed value of diastolic blood pressure among clients with Hypertension with their selected demographic variables in control group.

It was evident from the above table that there was no statistically significant association of mean differed value of diastolic blood pressure with demographic variable of clients with Hypertension in control group.

Table 4.6.6: Association of pre and post test mean difference level of level of stress among clients with Hypertension with their selected demographic variables in control group.

n=30

S.No.	Demographic Variables	Pretest		Post Test		Mean Diff.		ANOVA/ Unpaired 't' Value
		Mean	S.D	Mean	S.D	Mean	S.D	
1	**Duration of disease**							
	Below 1 year	28.00	-	28.00	-	0.00	-	F = 0.418 p = 0.742 N.S
	1 year - 2 years	28.18	3.84	28.00	3.79	0.18	0.60	
	3 years - 4 years	27.83	3.95	27.50	3.82	0.33	0.77	
	Above 4 years	28.66	2.06	28.66	2.06	0.00	0.00	
2	**Duration of treatment**							
	Below 1 year	28.00	-	28.00	-	0.00	-	F = 0.418 p = 742 N.S
	1 year - 2 years	28.18	3.84	28.00	3.79	0.18	0.60	
	3 years - 4 years	27.83	3.95	27.50	3.82	0.33	0.77	
	Above 4 years	28.66	2.06	28.66	2.06	0.00	0.00	

N.S – Not Significant

Table 4.6.6 denotes the associations of mean differed value of stress among clients with Hypertension with their selected demographic variables in control group.

It was evident from the above table that there was no statistically significant association of mean differed value of stress with demographic variable of clients with Hypertension in control group.

CHAPTER – 5

DISCUSSION

The study was conducted to evaluate the effectiveness of selected interventional package on level of blood pressure and stress among clients with Hypertension.

The discussion is based on the objectives, the review of literature and null hypotheses specified in this study.

5. 1: The first objective was to assess the pre test level of blood pressure and stress among clients with Hypertension in experimental and control group.

The analysis on the pretest level of systolic blood pressure in experimental group, revealed that 22(73.33%) had stage 1 Hypertension and 8(26.67%) had prehypertension.

The analysis on the pretest level of diastolic blood pressure in experimental group, revealed that 23(76.67%) had stage 1 Hypertension, 4(13.33%) had stage 2 Hypertension and remaining 3(10%) had prehypertension.

The analysis on the pretest level of systolic blood pressure in control group, revealed that 21(70.0%) had stage 1 Hypertension and 9(30.0%) had prehypertension.

The analysis on the pre test level of diastolic blood pressure in control group, revealed that 20(66.67%) had stage 1 hypertension, 5(16.67%) had stage 2 Hypertension, and remaining 5(16.67%) had pre Hypertension.

The analysis on the pretest level of stress in experimental group, revealed that 19(63.33%) had high level of stress and 11(36.67%) had moderate level of stress.

The analysis on the pretest level of stress in control group, revealed that 19(63.33%) had high level of stress and 11(36.67%) had moderate level of stress.

5.2: The second objective was to assess the post test level of blood pressure and stress among clients with Hypertension in experimental and control group.

The analysis on the post test level of systolic blood pressure in experimental group, revealed that 27(90.0%) subjects had prehypertension, 2(6.67) had normal blood pressure and 1(3.33%) had stage 1 Hypertension.

The analysis on the post test level of diastolic blood pressure in experimental group, revealed that 18(60.0%) had prehypertension, 10(33.33) had normal blood pressure and 2(6.67%) had stage 1 Hypertension.

The analysis on the post test level of systolic blood pressure in control group, revealed that 21(70.0%) had stage 1 Hypertension and 9(30.0%) had prehypertension.

The analysis on the post test level of diastolic blood pressure in control group, revealed that 20(66.67%) had stage 1 Hypertension, 5(16.67%) had stage 2 Hypertension and 5(16.67%) had prehypertension.

The analysis on the post test level of stress in experimental group, revealed that 27(90.0%) had moderate level of stress, 1(3.33%) had high level of stress and 2(6.67%) had low level of stress.

The analysis on the post test level of stress in control group, revealed that 19(63.33%) had high level of stress and remaining 11(36.67%) had moderate level of stress.

5.3: The third objective was to compare the pre and post test level of blood pressure and stress among clients with Hypertension in experimental group.

In experimental group, analysis on the pretest mean value of SBP was 141.27 with S.D 7.27 and the post test mean value of SBP was 127.13 with S.D 6.57. The pretest mean value of DBP was 92.40 with S.D 6.84 and the post test mean value of DBP was 77.20 with S.D 6.61. The calculated paired ‘t’ value of $t = 16.695$ for SBP and $t = 11.164$ for DBP was found to be statistically significant at $p<0.001$ level.

In experimental group, analysis on the pretest mean value of stress was 28.03 with S.D 3.88 and the post test mean value of stress was 19.86 with S.D 2.92. The calculated paired 't' value of t = 12.623 was found to be statistically significant at p<0.001 level.

Hence the null hypothesis **(NH_1)** stated earlier that **"there is no significant difference between pre and post test level of blood pressure and stress among clients with Hypertension in experimental group at p<0.05"** was rejected .

5.4: The forth objective was to compare the pre and post test level of blood pressure and stress among clients with Hypertension in control group.

In control group, analysis on the pretest mean value of SBP was 141.27 with S.D 6.52 and the post test mean value of SBP was 142.20 with S.D 6.37 and the pretest mean value of DBP was 92.47 with S.D 5.67 and the post test mean value of DBP was 92.73 with S.D 5.59. The calculated paired 't' value of t = 1.980 for SBP and t= 0.891 for DBP was not found to be statistically significant.

In control group, analysis on the pretest mean value of stress was 28.13 with S.D 3.44 and the post test mean value of stress was 27.93 with S.D 3.38. The calculated paired 't' value of t= 1.795 was not found to be statistically significant.

Hence the null hypothesis **(NH_2)** stated earlier that **"there is no significant difference between the pre test and post test level of blood pressure and stress among clients with Hypertension in control group at p<0.05"** was retained.

5.5: The fifth objective is to compare the pre test level of blood pressure and stress among clients with Hypertension between experimental group and control group.

The analysis on the pre test mean value of SBP in the experimental group was 141.27 with S.D 7.27 and the pre test mean value of SBP in the control group was 142.53 with S.D 6.52. The calculated unpaired 't' value of t = 0.711 was not found to be statistically significant.

The analysis on the pre test mean value of DBP in the experimental group was 92.40 with S.D 6.84 and the pre test mean value of DBP in the control group was 92.47

with S.D 5.67. The calculated unpaired 't' value of t = 0.041 was not found to be statistically significant.

The analysis on the pre test mean value of stress in the experimental group was 28.03 with S.D 3.88 and the pre test mean value of stress in the control group was 28.13 with S.D 3.44. The calculated unpaired 't' value of t = 0.106 was not found to be statistically significant.

5.6: The sixth objective was to compare the post test level of blood pressure and stress among clients with Hypertension between experimental group and control group.

The analysis on the post test mean value of SBP in experimental group was 127.13 with S.D 6.57 and the post test mean value of SBP in control group was 142.20 with S.D 6.37. The calculated unpaired 't' value of t = 9.011 was found to be statistically significant at $p<0.001$ level.

The analysis on the post test mean value of DBP in experimental group was 77.20 with S.D 6.61 and the post test mean value of DBP in control group was 92.73 with S.D 5.59. The calculated unpaired 't' value of t = 9.820 was found to be statistically significant at $p<0.001$ level.

The analysis on the post test mean value of stress in experimental group was 19.86 with S.D 2.92 and the post test mean value of stress in control group was 27.93 with S.D 3.38. The calculated unpaired 't' value of t = 9.885 was found to be statistically significant at $p<0.001$ level.

The above findings were consistent with the study conducted by **Kumutha V, (2014)** to assess the Effectiveness of Progressive Muscle Relaxation Technique on Stress and Blood Pressure among Elderly with Hypertension. 60 Hypertensive elder patients were selected. Stress level was assessed by perceived stress scale (PSS) and blood pressure was measured by sphygmomanometer. The study group (n=30) demonstrated the progressive muscle relaxation technique for 20 minutes for 21 days. Control group followed routine activities. The data were collected at four phases: The survey (pretest), demonstration of PMR, practice of PMR for 21 days. The result of the study were

variations in level of stress and blood pressure in the posttests as viewed with the pretest value of the study group at P<0.001. The result showed substantial variations in the study group which when compared with the control group at p<0.001 on stress, systolic blood pressure and p<0.05 on diastolic blood pressure. The study concluded that PMR to be an effective method to decrease the stress and blood pressure among elderly with Hypertension.

Hence the null hypothesis **(NH_3)** stated earlier that **"there is no significant difference in the post test level of blood pressure and stress among clients with Hypertension between experimental and control group at p<0.05"** was rejected.

5.7: The seventh objective was to correlate between the level of blood pressure and stress among clients with Hypertension in experimental group.

While analyzing the level of SBP, the mean value of SBP was 127.13with S.D 6.57and the mean differed value of stress was 19.86 with S.D 2.92. The calculated "r" value was 0.475 shows a positive correlation which was found to be statistically significant at p<0.01 level.

While analyzing the level of DBP, the mean value of DBP was 77.20 with S.D 6.61 and the mean value of stress was 19.86 with S.D 2.92. The calculated "r" value was 0.465 shows a positive correlation which was found to be statistically significant at p<0.01 level.

Hence the null hypothesis **(NH_4)** stated earlier that **"there is no significant correlation in post test level of blood pressure and stress among clients with Hypertension in experimental group at p<0.05"** was rejected.

5.8: The eighth objective was to correlate between the level of blood pressure and stress among clients with Hypertension in control group.

While analyzing the level of SBP, the mean value of SBP was 142.20 with S.D 6.37 and the mean value of stress was 27.93 with S.D 3.38 .The calculated "r" value was 0.231 shows a positive correlation but was not found to be statistically significant.

While analyzing the level of DBP, the mean value of DBP was 92.73 with S.D 5.59 and the mean value of stress was 27.93 with S.D 3.38 .The calculated "r" value was 0.374 shows a positive correlation but was found to be statistically significant.

Hence the null hypothesis(**NH_5**) stated earlier that **"there is no significant correlation in post test level of blood pressure and stress among clients with Hypertension in control group at p<0.05"** was retained.

5.9: The ninth objective was to associate the pre and post test mean difference level of blood pressure and stress among clients with selected demographic variables in experimental group.

There was a statistical significant association of level of systolic blood pressure with occupation and family history of Hypertension at p<0.01 and p<0.05 level and there was no statistically significance association was observed with other demographic variables in the experimental group.

There was a statistical significant association of level of diastolic blood pressure with marital status and regular exercise at p<0.05 and there was no statistically significance association was observed with other demographic variables in the experimental group.

There was a statistical significant association of level of stress with education status and physical activity at p<0.05 and there was no statistical significance association was observed with other demographic variables in experimental group.

Hence the null hypothesis (**NH_6**) stated earlier that **"there is no significant association in the pre and post test mean difference level of blood pressure and stress among clients with their selected demographic variables in Hypertension clients in experimental group at p<0.05"** was accepted for marital status and regular exercise, education status and physical activity and for other demographic variables rejected.

5.10: The tenth objective was to associate the pre and post test mean difference level of blood pressure and stress among clients with selected demographic variables in control group.

There was no significant association observed between mean differed blood pressure and stress value with their selected demographic variables among clients with Hypertension in the control group.

Hence the null hypothesis(**NH_7**) stated earlier that **"there is no significant association in the pre and post test mean difference level of blood pressure and stress among clients with their selected demographic variables in Hypertension clients in control group at p<0.05"** was retained.

CHAPTER – 6

SUMMARY, CONCLUSION, IMPLICATIONS, RECOMMENDATIONS AND LIMITATIONS

This chapter deals with summary, conclusion, implications, recommendations and limitations.

6.1 SUMMARY

Hypertension is one of the most crucial health problems and the most common chronic disease in developed and underdeveloped countries. It is called the silent killer which is usually diagnosed incidentally. Although hypertension is a preventable and treatable condition but without treatment it leads to serious and life threatening complications such as heart, kidney and brain disorders which in most cases result in patient's disability. Prevention plays significant role in controlling this disease which is achieved by increasing the knowledge and awareness of the public and changing their attitude and practice. Many studies reveal that there is a strong relationship between stress and Blood pressure. When stress increases gradually the blood pressure also increases.

Due to the prevalence and disease causing potential of hypertension, there is a need for evidence-based interventions, which may contribute to the management of hypertensive clients. The investigator felt the need for some non pharmacological management to reduce the blood pressure and stress among clients with hypertension.

The purpose of the study was to assess the effectiveness of selected interventional package on level of blood pressure and stress among client with hypertension in a cost effective way.

6.1.1 The objectives of the study were:

1. To assess the pre test level of blood pressure and stress among clients with hypertension in experimental and control group.
2. To assess the post test level of blood pressure and stress among clients with hypertension in experimental and control group.

3. To compare the pre and post test level of blood pressure and stress among clients with hypertension in experimental group.
4. To compare the pre and post test level of blood pressure and stress among clients with hypertension in control group.
5. To compare the pre test level of blood pressure and stress among clients with hypertension between experimental group and control group.
6. To compare the post test level of blood pressure and stress among clients with hypertension between experimental group and control group.
7. To correlate between the level of blood pressure and stress among clients with hypertension in experimental group and control group.
8. To determine the association in the pre and post test mean difference level of blood pressure and stress among clients with their selected demographic variables in experimental group.
9. To determine the association in the pre and post test mean difference level of blood pressure and stress among clients with their selected demographic variables in control group.

6.1.2 The study was based on the assumptions that:

1. Clients with hypertension will be suffering with stress.
2. Interventional package may help to reduce the level of blood pressure and stress among clients with hypertension.

6.1.3 The null hypotheses formulated were:

NH_1: There is no significant difference between pre and post test level of blood pressure and stress among clients with Hypertension in experimental group at $p<0.05$.

NH_2: There is no significant difference between pre and post test level of blood pressure and stress among clients with Hypertension in control group at $p<0.05$.

NH_3: There is no significant difference in the post test level of blood pressure and stress among clients with Hypertension between experimental and control group at $p<0.05$.

NH_4: There is no significant correlation between post test level of blood pressure and stress among clients with Hypertension in experimental group at $p<0.05$.

NH_5: There is no significant correlation between post test level of blood pressure and stress among clients with Hypertension in control group at $p<0.05$.

NH_6: There is no significant association in the pre and post test mean difference level of blood pressure and stress among clients with their selected demographic variables in Hypertension clients in experimental group at $p<0.05$.

NH_7: There is no significant association in the pre and post test mean difference level of blood pressure and stress among clients with their selected demographic variables in Hypertension clients in control group at $p<0.05$.

The conceptual framework for this study was developed based on **THE HELPING ART THEORY BY ERNESTINE WIEDENBACH** .In the conceptual framework the central purpose is to reduce the BP and stress. By applying this theory the investigator administered the selected interventional package on reducing BP and stress among clients with hypertension.

The investigator has done an in depth review of literature which includes the both theoretical and empirical related studies which provided a strong foundation for the study, including the basis for the conceptual framework and formation of the tool and to select the research methodology.

The research design adopted for this study is pre test and post test design which comes under True experimental design. In this study, Simple random sampling technique using lottery method was adopted to select the clients who were having stress and blood pressure. The content validity of the tool was established by 9 experts. Reliability of tool was established by inter rater reliability method. The pilot study was conducted at Sai Seva Yoga Nature Cure Hospital and Research Centre, Tiruvannamalai.

The main study was conducted on 60 hypertensive clients admitted at Sai Seva Yoga Nature Cure Hospital and Research Centre, Tiruvannamalai.

The data collected were analyzed and interpreted based on the objectives and null hypothesis using descriptive and inferential statistics. The findings reveled that there was a significant difference in the level of blood pressure and stress among client with hypertension after administration of the selected interventional package.

6.1.4 The major findings of the study revealed that

On analysis of pre and post test level of Blood pressure in experimental group, the calculated paired 't' value of t = 16.695 for SBP and t= 11.164 for DBP was found to be statistically significant at p<0.001 level.

On analysis of pre and post test level of Blood pressure in control group, the calculated paired 't' value of t = 1.980 for SBP and t= 0.891 for DBP was not found to be statistically significant.

On analysis of pre and post test level of stress in experimental group, the calculated paired 't' value of t = 12.623 for stress in experimental group was found to be statistically significant at p<0.001 level.

On analysis of pre and post test level of stress in control group, the calculated paired 't' value of t= 1.795 was not found to be statistically significant at p<0.001 level.

On analysis of post test level of systolic Blood pressure between experimental and control group, the calculated unpaired 't' value of t = 9.011 was found to be statistically significant at p<0.001 level.

On analysis of post test level of Diastolic Blood pressure between experimental and control group, the calculated unpaired 't' value of t = 9.820 was found to be statistically significant at p<0.001 level.

On analysis of post test level of stress between experimental and control group, the calculated unpaired 't' value of t = 9.885 was found to be statistically significant at p<0.001 level.

In experimental group, a positive correlation was observed between post test SBP and stress and Post test DBP and Stress in the experimental group which was found to be statistically significant at p<0.05 level.

In control group, a positive correlation was observed between post test SBP and stress shows a positive correlation but was not found to be statistically significant. The

post test DBP and stress shows a positive correlation which was found to be statistically significant at $p<0.05$ level.

6.2 CONCLUSION

The study findings revealed that there is a significant reduction of blood pressure and stress among clients with hypertension after providing the selected interventional package. Therefore selected interventional package it includes flax seed and JPMR, flax seed can be added in a daily diet in day today life and JPMR to be provided as a planned programme in a periodic sessions as the hypertension clients are the more risk to have complications like CVD and stroke. The selected interventional package helps to reduce the level of blood pressure and stress. Hence it can be concluded that selected interventional package is a cost effective, non-invasive, non-pharmacological alternative in the management of hypertension. It is a simple and easily learned technique of stress management.

6.3 NURSING IMPLICATIONS

The Researcher has derived the following implications from the study which are of vital concern to the field of nursing service, nursing administration, nursing education, and nursing research.

6.3.1 Implications of Nursing Practice

- The nursing personal should develop an in depth knowledge about the blood pressure and stress.
- Certification programs for training for relaxation technique for health personnel should be started in hospitals.
- Staff development programs for imparting education and training regarding complementary and alternative therapy like diet therapy and relaxation technique.
- The nursing personnel should encourage the hospitals to set up a separate nursing care unit for patients receiving alternative therapies like exercise, relaxation technique and diet.
- Nurses can collaborate with the other health team members in providing education to the clients with hypertension.

6.3.2 Implications for Nursing Education

- The nurse educators need to be equipped with adequate knowledge regarding complementary and alternative therapy like exercise, relaxation technique and diet.
- The nurse educators should provide students with adequate clinical exposure in relation to practice of relaxation technique and alternative therapy like exercise, relaxation technique and diet for clients with hypertension.
- The nurse educators Conduct workshops or conferences for students regarding the use of complementary and alternative therapy like exercise, relaxation technique and diet in day today life.
- The nurse educators strengthen the curriculum for nurses to excel them in knowledge and skill in areas of complementary and alternative therapy systems of health care in daily life.
- The educational institutions must provide opportunities for nursing students to visit different complementary and alternative therapy centre.

6.3.3 Implications for Nursing Administration

- Nursing Administrators Collaborate with the governing bodies as well as the hospital administration to formulate standards protocols and policy to emphasize complementary and alternative therapies like exercise, relaxation technique and diet in the care of clients with hypertension.
- Nursing Administrators conduct in-service education program in effectiveness of complementary and alternative therapies and enhance the implementation of the relaxation technique and diet to promote life style modifications in client with hypertension.
- Nursing Administrators can strengthen role of the nurses in initiating and implementing non pharmacological like exercise, relaxation technique and diet management in the care of clients with hypertension.
- Nursing Administrators Incentives and rewards can be given to motivate the nurses to implement the non pharmacological management among clients with hypertension.

6.3.4 Implications of Nursing Research

As a nurse researcher

- ❖ disseminate the findings of research through conferences, seminars, and publishing in nursing journals.
- ❖ motivate to conduct more studies to know the effectiveness of non pharmacological management like exercise, relaxation technique and diet.
- ❖ be aware of the new trends in existing non pharmacological management for BP and Stress .
- ❖ assess the effectiveness of the study can be verified by the nurses in the clinical and community settings.
- ❖ encourage the utilization of evidence base practice in the clinical and community settings.

6.4 RECOMMENDATIONS

The study recommends the following for further research.

1. Similar study can be replicated on a larger samples there by findings can be generalized for large population.
2. The study to assess the effect of structured teaching programme regarding non pharmacological management of hypertension like diet and relaxation techniques can be done.
3. Comparative study can be done to evaluate the Bp and stress using the other non pharmacological management in clients with hypertension in urban and rural settings.
4. An experimental study can be undertaken in different settings like PHCs and industries.
5. Similar study can be done without pharmacological management with hypertension clients.
6. A study can be performed by developing a self-instructional module which enables the care givers to become aware of effectiveness of complementary and alternative therapies like exercise, relaxation technique and diet and its benefits.
7. A further study can be conducted to assess the knowledge, attitude and practice of complementary and alternative therapies like exercise, relaxation technique and diet.

6.5 LIMITATIONS

During the period of study the limitations faced by the investigator are as follows:

- Researcher found difficulty in getting Indian reviews related to flax seed on reducing blood pressure.

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VIGNESH NURSING COLLEGE

No. 131, Manalurpet Road, Kizhanaikarai, Tiruvannamalai - 606 603.

Recognized by Indian Nursing Council, NewDelhi & Tamil Nadu Nurses & Midwives Council, Chennai

Affiliated to The Tamil Nadu Dr.M.G.R. Medical University, Chennai

LETTER SEEKING AND GRANTING PERMISSION FOR DATA COLLECTION

Date: 05.05.2014

To

The chief medical officer,
Sai Seva Yoga Nature Cure Hospital and Research Centre,
42-C, Big Street,
Tiruvannamalai.

Sir,

Sub: Requesting to grant permission for data collection– regarding.

******

Ms. R.Rathi is a bonafide student of our college studying in M.Sc (Nursing) programme. As a partial fulfillment of the University requirement for the award of M.Sc (Nursing) degree, she needs to conduct research project.

Her chosen research project is as follows "A Study to Assess the Effectiveness of Selected Interventional Package on the Level of Blood Pressure and Stress among Client with Hypertension Admitted at Selected Hospital, Tiruvannamalai" during May-June 2014 .

She will abide by the rules and regulations of the institution and adhere to the institutional policies during her period of data collection. Permission may kindly be granted to her for conduction of the study at your esteemed institution.

Further details of the proposal project will be furnished by the student personally. Confidentiality will be ensured in the research project.

Thanking you

Yours faithfully,

PRINCIPAL,
Vignesh Nursing College,
Kizhanaikkarai,
Tiruvannamalai - 606 603.

Phone : 04175 - 235410
Fax : 04175 - 235410
E-mail : vnc_tvmalai@yahoo.co.in
Website : www.vigneshgroupofcolleges.com

SAI SEVA YOGA, NATURE CURE HOSPITAL & RESEARCH CENTRE

(Run by NYRD TRUST)

Dr. P. EZHILMARAN, B.N.Y.S., M.Sc (Psy)
Chief Medical Officer,
Reg. No: 67

Date: 06.05.2014

To

The principal,

Vignesh nursing college,

Tiruvannamalai.

Madam,

Sub: Permission for conducting study- Reg.

Ref: Your letter dated 05.05.2014.

With reference to your letter, we are happy to permit Ms.R.Rathi.,M.Sc.(Nursing) 2nd year student of your college to conduct her study (A study to assess the effectiveness of selected interventional package on level of blood pressure and stress among clients with hypertension admitted at selected hospital, Tiruvannamalai) at our institution under the following conditions;

Terms and Conditions:

A) The candidate should strictly follow the rules and regulations of our hospital.
B) Whatever details collected should be presented to us for vetting before submission to the college.
C) Information so collected should be kept strictly confidential.

Yours faithfully,

P. Ezhilmaran

Dr. P. EZHILMARAN, B.N.Y.S., M.Sc (Psy)
Chief Medical Officer,
Reg. No: 67
SAI SEVA YOGA, NATURE CURE
HOSPITAL & RESEARCH CENTRE
42-C, Big Street, Tiruvannamalai - 606 601, Tamilnadu
Cell : 09488858372, Phone: 04175-251241
e-mail: drezhilmaran@curenatural.org

APPENDIX - C

LETTER SEEKING EXPERTS OPINION FOR CONTENT VALIDITY

From

R.Rathi
M.Sc.(Nursing) II Year,
Vignesh Nursing College,
Tiruvannamalai.

To

Respected sir/madam,

SUB: Requisition for expert opinion for content validity.

I am a second year M.Sc (Nursing) student studying in Vignesh Nursing College, Manalurpet Road, Tiruvannamalai, under the Tamilnadu Dr.M.G.R. Medical University.

I would like to conduct "A study to assess the effectiveness of selected interventional package on level of blood pressure and stress among clients with hypertension admitted at selected hospital, Tiruvannamalai".

Herewith I am sending the developed tool for content validity for your opinion and possible suggestions, I would be most obliged if you can do the needful and return it to the undersigned.

Thanking you,

Yours faithfully,

R.RATHI

Enclosure:

1. Research proposal
2. Research Tool and Scoring Key
3. Certificate for content validity
4. Self –Addressed Envelop

APPENDIX - D

LIST OF EXPERTS FOR CONTENT VALIDITY

MEDICAL EXPERTS:

1 **Dr.K. Karthikeyan M.D (Gen. Med).,**
Assistant Professor,
Dept. of Medicine,
Govt.Thiruvannamalai Medical College and Hospital,
Tiruvannamalai - 606 604.

2 **Dr. Ezilmaran B.N.Y.S., M.Sc (phy).,**
Chief Medical Officer,
Sai Seva Yoga Nature Cure Hospital & Research Centre,
Tiruvannamalai – 606 601.

NURSING EXPERTS:

1 **Mrs. Priyadharshini M.Sc(N)**
Principal cum Professor in Nursing,
Al-Ameen College of Nursing,
Tiruvannamalai - 606 604.

Mrs.N.Anitha, M.Sc.(N)
2 Professor,
Sri Gokulam College of Nursing,
Neikkarapatti,
Salem- 636 010

3 **Mrs. Jolly Ranjith M.Sc(N)**
Professor,
Medical Surgical Nursing
Omayal Achi College of Nursing
Chennai – 600 066.

4 **Mrs.M.Sumathi,M.Sc(N), Ph.D(N)**
Professor, Head of the Department ,
Medical Surgical Nursing
Omayal Achi College of Nursing,
Chennai – 600 066.

5 **Mrs. S. Sasikala, M.Sc(N)**
Assistant Professor,
Medical Surgical Nursing
Omayal Achi College of Nursing,
Chennai – 600 066.

6 **Mr.P.Vasanthakumar, M.Sc(N)**
Assistant Professor,
Vinayaka Mission college of Nursing,
Karikal - 609 602.

DIETICIAN EXPERT:

1 **Dr.(Mrs).P.V.Lakshmi**
Dietician,
Global Health City,
Chennai.

SAI SEVA YOGA, NATURE CURE
HOSPITAL & RESEARCH CENTRE
(Run by NYRD TRUST)

Dr. P. EZHILMARAN, B.N.Y.S., M.Sc (Psy)
Chief Medical Officer,
Reg. No: 67

Date: 09.02.14

TO WHOMSOEVER IT MAY CONCERN

This is to certify that Miss.Rathi.R who is doing M.sc Nursing IInd Year at Vignesh Nursing College had come to our institution for her project on " A Study to assess the effectiveness of selected interventional package on the level of Blood Pressure & Stress among Clients with Hypertension admitted at selected hospital, Thiruvannamalai". She had demonstrated "Jacobson Progressive Muscle Relaxation" to our patients & she is eligible to teach the patients.

Yours,

Dr. P. EZHILMARAN, B.N.Y.S., M.Sc (Psy)
Chief Medical Officer,
Reg. No: 67
SAI SEVA YOGA, NATURE CURE
HOSPITAL & RESEARCH CENTRE
42-C, Big Street, Tiruvannamalai - 606 601, Tamilnadu.
Cell : 09488858372, Phone: 04175-251241
e-mail: drezhilmaran@curenatural.org

APPEDIX – F

CERTIFICATE OF ENGLISH EDITING

TO WHOMSOEVER IT MAY CONCERN

This is to certify that the dissertation work **"A study to assess the effectiveness of selected interventional package on level of blood pressure and stress among clients with hypertension admitted at selected hospital, Tiruvannamalai",** done by **MS.R.Rathi,** II year, M.Sc.(Nursing) student of Vignesh Nursing College, Tiruvannamalai ,is edited for English language appropriateness.

Seal with Date: 15/12/17

Y.JAYARAJ SAMUEL, M.A.,M.Ed.,M.Phil.,
P.G. Assistant (English)
Shanmuga Industries
Govt. Hr. Sec. School
THIRUVANNAMALAI

Date: 15/12/2017
Pin-606 603

15/12/17

Signature

Y.JAYARAJ SAMUEL, M.A.,M.Ed.,M.Phil.,
P.G. Assistant (English)
Shanmuga Industries
Govt. Hr. Sec. School
THIRUVANNAMALAI

APPEDIX – G

CERTIFICATE OF TAMIL EDITING

TO WHOMSOEVER IT MAY CONCERN

This is to certify that the dissertation work **"A study to assess the effectiveness of selected interventional package on level of blood pressure and stress among clients with Hypertension admitted at selected hospital, Tiruvannamalai"**, done by **MS.R.Rathi,** II year, M.Sc.(Nursing) student of Vignesh Nursing College, Tiruvannamalai , is edited for Tamil language appropriateness.

Seal with Date: 12/01/2015

க. பாக்கியராஜ், எம்.ஏ.,எம்.ஃபில்.,பி.எட்.,
முதுகலைத் தமிழாசிரியர்,
அரசு மேல்நிலைப் பள்ளி,
பெருங்குளத்தூர் - 605 708., தி.மலை மாவட்டம்.

12/01/2015

Signature

APPEDIX – H

INFORMED CONSENT REQUISITION FORM

Good morning,

I Ms.R.Rathi., M.sc. (Nursing) II year student from Vignesh Nursing College, Truvannamalai, conducting **"A study to assess the effectiveness of selected interventional package on level of blood pressure and stress among clients with hypertension admitted at selected hospital, Tiruvannamalai"** as a partial fulfillment of the requirement for the degree of M.Sc. Nursing under the Tamil Nadu Dr. M.G.R. Medical University.

I assure you that information provided by you will be kept confidential. So, I request you to kindly cooperate with me and participate in this study by giving your frank and honest responses to the questions being asked.

Thank you.

ஒப்புதல் படிவம்

வணக்கம்,

ரா.ரதி ஆகிய நான் திருவண்ணாமலையில் உள்ள விக்னேஷ் செவிலியர் கல்லூரியில் முதுகலை பட்டப்படிப்பு பயின்று வருகின்றேன். என் படிப்பின் ஒரு பகுதியாக நோயாளியிடம் இரத்த அழுத்தத்தின் அளவு மற்றும் அதனால் ஏற்படும் மனஅழுத்தம் பற்றிய ஆய்வை நடத்துவதற்கான கேள்விகளை வடிவமைத்துள்ளேன்.

தயவு செய்து நீங்கள் என்னுடன் ஒத்துழைக்குமாறு வேண்டிக் கொள்கிறேன். நான் உங்களிடம் இருந்து பெற்ற தகவல்களை எக்காரணத்தைக் கொண்டும் வெளியிட மாட்டேன் என்று உறுதி அளிக்கிறேன்.

நன்றி!

APPENDIX – I

INFORMED CONSENT FORM

I understand that I am being asked to participate in a research study conducted by **Ms. R.Rathi,** M.sc (N) student of Vignesh Nursing College, Tiruvannamalai. This research study will assess the **"A study to assess the effectiveness of selected interventional package on level of blood pressure and stress among clients with hypertension admitted at selected hospital, Tiruvannamalai".** If I agree to participate in the study, I will be interviewed. The interview may be recorded and will take place in privacy. No identifying information will be included when the interview is transcribed. I understand that there are no risks associated with this study.

I realize that the benefits of the flax seed and Jacobson progressive muscle relaxation technique from this study may help either me or other people in the future. I realize that my participation in this study is entirely voluntary, and I may withdraw from the study at any time I wish. If I decide to discontinue my participation in this study, I will continue to be treated in the usual and customary fashion.

I understand that all study data will be kept confidential. However, this information may be used in nursing publication or presentations. If I need to, I can contact **Ms.R.Rathi.,** M.Sc.(N) II year student of Vignesh Nursing College, Tiruvannamalai at any time during the study.

The study has been explained to me. I have read and understood this consent form, all of my questions have been answered, and I agree to participate. I understand that I will be given a copy of this signed consent form.

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Signature of Participant Date:

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Signature of Investigator Date:

முன் அறிவிப்பு ஒப்பந்த படிவம்

விக்னேஷ் செவிலியர் கல்லூரியின் சார்பில் முதுநிலை பட்டப்படிப்பு பயிலும் ரா.ரதி அவர்களால் நடத்தபெறும் இந்த ஆய்வில் என்னை பங்கேற்க கேட்டுக் கொண்டதை நான் ஏற்றுக்கொள்கிறேன். இந்த ஆய்வுக்கு நான் ஒப்புக் கொண்டால் அதனைத் தொடர்ந்து உள்ள பயிற்சிகளில் நான் பங்கேற்க வேண்டும் என்றும் என்னிடம் நடத்தும் இந்த ஆய்வு முடிவுகள் அனைத்தும் பதிவு செய்து பாதுகாக்கப்படும் என்பதை நான் அறிவேன். நான் எவரின் / யாருடைய காட்டாயத்தின் பெயரிலோ அல்லது வற்புறுத்தலின் பெயரிலோ ஆய்வில் பங்கு கொள்ளவில்லை என்பதையும் தேவைப்பட்டால் நான் ஆய்விலிருந்து விலகிக் கொள்ளும்பட்சத்திலும் எப்போதும் பிறரைப் போலவே நடத்தப்படுவேன் என்பதை அறிவேன்.

என்னைப் பற்றிய அனைத்து தகவல்களும் இரகசியமாக பாதுகாக்கப்படும் என்பதையும் தேவைப்படும் போது ஆய்வின் முடிவுகள் செவிலியர் சார்ந்த பத்திரிகைகைகளிலும், கருத்தரங்குகளிலும் வெளியிட முழு சம்மதம் அளிக்கிறேன். இந்த ஆய்வினை பற்றிய முழு விளக்கமும் எனக்கு அளிக்கப்பட்டிருக்கிறது. அதனை நான் முற்றிலுமாக புரிந்து கொண்டு ஆய்வில் பங்குக்கொள்ள சம்மதம் அளிக்கிறேன்.

இந்த ஆய்வில் தேவைப்படும் போது எப்போது வேண்டுமானாலும் செல்வி.ரா.ரதி அவர்களை விக்னேஷ் செவிலியர் கல்லூரியில் தொடர்பு கொள்ளலாம் என்பதை அறிவேன்.

பங்குகொள்பவரின்/பாதுகாவலரின் கையொப்பம் **தேதி:**

ஆராய்ச்சியாளரின் கையொப்பம் **தேதி:**

APPEDIX – J

TOOLS IN ENGLISH

SECTION – A: DEMOGRAPHIC DATA

NAME OF THE SUBJECT ——————————

1. Age in years
   (a) 31 – 40
   (b) 41 – 50
   (c) 51 – 60
   (d) 61 – 70

2. Gender
   (a) Male
   (b) Female

3. Religion
   (a) Hindu
   (b) Muslim
   (c) Christian
   (d) Others

4. Marital Status
   (a) Single
   (b) Married
   (c) Divorced
   (d) Widow & Widower

5. Educational Status
   (a) Non literate
   (b) Primary school education
   (c) Secondary School education
   (d) Graduate

6. Occupational Status
   (a) Unemployed
   (b) Unskilled Worker
   (c) Semiskilled Worker
   (d) Skilled Worker
   (e) Professional Worker
   (f) Others

7. Family Monthly Income
   (a) < Rs.10,000
   (b) Rs.10,001-20,000
   (c) Rs. 20,001-30,000
   (d) >Rs.30,000

8. Type of physical activity
   (a) Sedentary
   (b) Mild
   (c) Moderate
   (d) Heavy

9. Area of Residence
   (a) Rural
   (b) Urban

10. Type of Family
   (a) Nuclear
   (b) Joint Family
   (c) Extended Family

11. Dietary pattern
   (a) Vegetarian
   (b) Non- vegetarian

12. Habit of smoking

(a) No

(b) Yes

If yes specify the duration ……..

13. Consumption of alcohol

(a) No

(b) Yes

If yes specify the amount……..

14. Do you practice regular exercise

(a) No

(b) Yes

If yes specify the type of exercise……..

15. Duration of Disease

(a) Below 1 year

(b) 1 year – 2 years

(c) 3 years – 4 years

(d) Above 4 years

16. Family history of Hypertension

(a) No

(b) Yes

If yes specify ……..

17. Treatment for Hypertension

(a) Regular

(b) Irregular

If irregular specify the reason……..

18. Associated illness:

(a) No illness

(b) Cardiac disease

(c) Diabetes mellitus

(d) Others

19. Duration of treatment

(a) Below 1 year

(b) 1 year – 2 years

(c) 3 years – 4 years

(d) Above 4 year

SECTION – B: TOOL FOR BLOOD PRESSURE

Assesses the level of blood pressure by using sphygmomanometer and stethoscope before and after the intervention.

SCORING KEY FOR BLOOD PRESSURE:

JNC 7 CLASSIFICATION FOR BLOOD PRESSURE

Category	**Systolic blood pressure (mm Hg)**	**Diastolic blood pressure(mm Hg)**
Normal	<120	<80
Pre hypertension	120-139	80-89
Stage 1	140-159	90-99
Stage 2	≥160	≥100

SECTION – C: TOOL FOR STRESS

PERCEIVED STRESS 10 ITEM SCALE

S.NO.	ITEM	Never	Almost Never	Sometimes	Fairly Often	Very Often
1.	In the last month, how often have you been upset because of something that happened unexpectedly?					
2.	In the last month, how often have you felt that you were unable to control the important things in your life?					
3.	In the last month, how often have you felt nervous and "stressed"?					
4.	In the last month, how often have you felt confident about your ability to handle your personal problems?					
5.	In the last month, how often have you felt that things were going your way?					
6.	In the last month, how often have you found that you could not cope with all the things that you had to do?					
7.	In the last month, how often have you been able to control irritations in your life?					
8.	In the last month, how often have you felt that you were on top of things?					
9.	In the last month, how often have you been angered because of things that were outside of your control?					
10.	In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?					

SCORING KEY FOR STRESS:

Item	Never	Almost Never	Sometimes	Fairly Often	Very Often
POSITIVE **4, 5, 7, & 8**	4	3	2	1	0
NEGATIVE **1, 2, 3, 6, 9, 10**	0	1	2	3	4

SCORES	LEVEL OF STRESS
1-13	Low level of Stress
14-26	Moderate level of Stress
27-40	High level of Stress

APPENDIX – K

TOOLS IN TAMIL

தனி நபர் விவரம்

1. வயது வருடங்களில்
   அ) 31 – 40
   ஆ) 41 – 50
   இ) 51 – 60
   ஈ) 61 – 70

2. பாலினம்
   அ) ஆண்
   ஆ) பெண்

3. மதம்
   அ) இந்து
   ஆ) முஸ்லீம்
   இ) கிறிஸ்துவர்
   ஈ) மற்றவை

4. திருமண தகுதி
   அ) திருமணமாகாதவர்
   ஆ) திருமணமானவர்
   இ) விவாகரத்து ஆனவர்
   ஈ) விதவை & மனைவியை இழந்தவ

5. கல்வித்தகுதி
   அ) கல்வி அறிவில்லாதவர்
   ஆ) ஆரம்பக்கல்வி
   இ) உயர்நிலைக்கல்வி
   ஈ) பட்டப்படிப்பு

6. வேலைத்தகுதி

அ) வேலையில்லாதவர்

ஆ) பயிற்சியற்ற வேலை

இ) ஓரளவு பயிற்சிபெற்ற வேலை

ஈ) பயிற்சி பெற்ற வேலை

உ) தொழிற்துறை

ஊ) மற்றவை

7. குடும்ப மாதவருமானம்

அ) <ரூ.10,000

ஆ) ரூ.10,000 – 20,000

இ) ரூ.20,001 – 30,000

ஈ) >ரூ.30,000

8. உடல் செயல்பாடு

அ) உடல் உழைப்பு தேவைப்படாத வேலை

ஆ) லேசான வேலை

இ) மிதமான வேலை

ஈ) அதிக வேலை

9. வசிக்கும் இடம்

அ) கிராமம்

ஆ) நகரம்

10. குடும்ப வகை

அ) தனிக்குடும்பம்

ஆ) கூட்டுக்குடும்பம்

இ) நீட்டிக்கப்பட்ட குடும்பம்

11. உணவு வகை

அ) சைவம்

ஆ) அசைவம்

12. புகைப்பழக்கம்

அ) இல்லை

ஆ) ஆம்

ஆம் எனில், காலம் _____

13. மதுப்பழக்கம்

அ) இல்லை

ஆ) ஆம்

ஆம் எனில், அருந்தும் அளவு _____

14. உடற்பயிற்சி பழக்கம்

அ) இல்லை

ஆ) ஆம்

ஆம் எனில், உடற்பயிற்சி வகை _____

15. நோய் தாக்கத்தின் காலம்

அ) ஒரு வருடத்திற்கு கீழ்

ஆ) 1 – 2 வருடங்கள்

இ) 3 – 4 வருடங்கள்

ஈ) 4 வருடங்களுக்கு மேல்

16. குடும்பத்தில் இரத்தகொதிப்பின் தாக்கம்

அ) இல்லை

ஆ) ஆம்

ஆம் எனில் _____

17. இரத்தக்கொதிப்பிற்கான மருத்துவசிகிச்சை

அ) வழக்கமான

ஆ) ஒழுங்கற்ற

ஒழுங்கற்ற நிலை காரணம் _____

18. தொடர்புடைய நோய்

அ) ஒன்றுமில்லை

ஆ) இருதய நோய்

இ) நீரிழிவு நோய்

ஈ) மற்றவை

19. சிகிச்சையின் காலம்

அ) ஒரு வருடத்திற்கு கீழ்

ஆ) 1 – 2 வருடங்கள்

இ) 3 – 4 வருடங்கள்

ஈ) 4 வருடங்களுக்கு மேல்

உணர்வது அழுத்த அளவு 10 பொருள்

S.NO.	ITEM	ஒருபோதும்	கிட்டத்தட்ட	சில நேரங்களில்	அடிக்கடி	மிகவும் அடிக்கடி
1.	கடந்த மாதம், எப்படி அடிக்கடி நீங்கள் எதிர்பாராத விதமாக நடந்தது என்று ஏதாவது வருத்தம் இருந்திருக்கும்?					
2.	கடந்த மாதம், எப்படி அடிக்கடி நீங்கள் உங்கள் வாழ்க்கையில் முக்கியமான விஷயங்களை கட்டுப்படுத்த முடியவில்லை என்று உணர்ந்தீர்கள்?					
3.	கடந்த மாதம், எப்படி அடிக்கடி நீங்கள் நரம்பு உணர்ந்தேன் மற்றும் "வலியுறுத்தினார்"?					
4.	கடந்த மாதம், எப்படி அடிக்கடி நீங்கள் உங்கள் தனிப்பட்ட சிக்கல்களை கையாள உங்கள் திறனை பற்றி நம்பிக்கை உணர்ந்தீர்கள்?					
5.	கடந்த மாதம், எப்படி அடிக்கடி நீங்கள் விஷயங்களை உங்கள் வழியில் செல்கிறோம் என்று உணர்ந்தீர்கள்?					
6.	கடந்த மாதம், எப்படி அடிக்கடி நீங்கள் என்ன செய்ய வேண்டும் என்று அனைத்து விஷயங்கள் சமாளிக்க முடியவில்லை என்று கண்டறியப்பட்டுள்ளது?					
7.	கடந்த மாதம், எப்படி அடிக்கடி நீங்கள் உங்கள் வாழ்க்கையில் எரிச்சலும் கட்டுப்படுத்த முடிந்தது?					
8.	கடந்த மாதம், எப்படி அடிக்கடி நீங்கள் விஷயங்களை மேல் என்று உணர்ந்தீர்கள்?					
9.	கடந்த மாதம், எப்படி அடிக்கடி நீங்கள் உங்கள் கட்டுப்பாட்டிற்கு வெளியே இருந்தது என்று விஷயங்களை கோபமடைந்த?					
10	கடந்த மாதம், எப்படி அடிக்கடி நீங்கள் அவர்களை சமாளிக்க முடியாது என்று உயர் குவிந்து யார் சிரமங்களை உணர்ந்தீர்கள்?					

CODING FOR DEMOGRAPHIC DATA

DEMOGRAPHIC DATA	CODE NO
1. Age in years	
(a) 31 – 40	1
(b) 41 – 50	2
(c) 51 – 60	3
(d) 61 - 70	4
2. Gender	
(a) Male	1
(b) Female	2
3. Religion	
(a) Hindu	1
(b) Muslim	2
(c) Christian	3
(d) Others	4
4. Marital Status	
(a) Single	1
(b) Married	2
(c) Divorced	3
(d) Widow & Widower	4
5. Educational Status	
(a) Non literate	1
(b) Primary school education	2
(c) Secondary School education	3
(d) Graduate	4

6. Occupational Status
   - (a) Unemployed 1
   - (b) Unskilled Worker 2
   - (c) Semiskilled Worker 3
   - (d) Skilled Worker 4
   - (e) Professional Worker 5
   - (f) Others 6

7. Monthly Income
   - (a) Rs.< 10,000 1
   - (b) Rs.10,001-20,000 2
   - (c) Rs.20,001-30,000 3
   - (d) Rs.>30,000 4

8. Type of physical activity
   - (a) Sedentary 1
   - (b) Mild 2
   - (c) Moderate 3
   - (d) Heavy 4

9. Area of Residence
   - (a) Rural 1
   - (b) Urban 2

10. Type of Family
   - (a) Nuclear 1
   - (b) Joint Family 2
   - (c) Extended Family 3

11. Dietary pattern
   - (a) Vegetarian 1
   - (b) Non- vegetarian 2

12. Habit of smoking

(a) No 1

(b) Yes 2

If yes specify the duration ……..

13. Consumption of alcohol

(a) No 1

(b) Yes 2

If yes specify the amount……..

14. Do you practice regular exercise

(a) No 1

(b) Yes 2

If yes specify the type of exercise……..

15. Duration of Disease

(a) Below 1 year 1

(b) 1 year – 2 years 2

(c) 3 years – 4 years 3

(d) Above 4 years 4

16. Family history of hypertension

(a) No 1

(b) Yes 2

If yes specify ……..

17. Treatment for Hypertension

(a) Regular 1

(b) Irregular 2

If irregular specify the reason……..

18. Associated illness:

(a) No illness	1
(b) Cardiac disease	2
(c) Diabetes mellitus	3
(d) Others	4

19. Duration of treatment

(a) Below 1 year	1
(b) 1 year – 2 years	2
(c) 3 years – 4 years	3
(d) Above 4 year	4

APPENDIX – L

JACOBSON PROGRESSIVE MUSCLE RELAXATION TECHNIQUE

"Relaxation is the direct negative of nervous excitement.
It is the absence of nerve-muscle impulse"

~ Edmund Jacobson, MD

Basic Guidelines for PMR:

- Allow 20-30 minutes. a day (2x daily is ideal - Time will shorten with practice)
- Find a quiet location with no distractions
- Wear loose clothing and remove shoes
- Practice on an empty stomach – avoid eating, drinking, or smoking
- Assume a comfortable position either sitting in a chair or lying down
- Close your eyes and assume a passive, unrushed attitude
- Tense and relax each muscle group once - focus on both sensations
- Use the same time intervals for all muscle groups
- Allow all the other muscles in your body to remain relaxed

THE PROGRESSIVE MUSCLE RELAXATION TECHNIQUE:

- **STEP 1: TENSION** – Inhale and purposely tense up or tighten hard the selected muscle group (not so hard that you strain). Hold the muscle tension for 5-10 seconds.

- **STEP 2: RELAX** - Exhale while quickly but gently letting go, releasing tension. Take pleasure in the sensation of tension draining out of your body. Be still 15-20 seconds before moving on to the next muscle group. Compare relaxation vs. contraction.

Throughout the exercise, maintain awareness on how your muscles feel during both contracting and relaxing. When your attention wanders, bring it back to the particular muscle group you're working on.

Alternate muscle groups - from right to left, starting with the hands, and work up to the shoulders. Then begin with the feet. Starting with the right foot, work back up to the shoulders (again), leaving the neck and face last.

Any particular sequence is ok, but to start with areas in which physical and emotional tension seem to gather, such as the shoulders, neck and face might prove difficult.

TENSING THE VARIOUS MUSCLE GROUPS

- ✓ **Hands & Forearms** - clench your hand and make a tight fist.
- ✓ **Upper Arms** - curl your arm and flex your bicep as if "making a muscle".
- ✓ **Shoulders** - shrug both your shoulders trying to touch them to your ears.
- ✓ **Feet** - flex your toes upward.
- ✓ **Front of Legs** - point your toes so that your foot is parallel with your leg.
- ✓ **Back of Legs** - flex your feet upwards, stretching your heels down.
- ✓ **Thighs** - extend your leg keeping your foot relaxed; press the back of your knee towards the floor.
- ✓ **Bottom** - clench your buttocks together.
- ✓ **Abdomen** - hold your stomach muscles in tight.
- ✓ **Lower Back** - press the small of your back into the chair or floor.
- ✓ **Upper Back** – (1) with both arms down along your sides, tighten and press them in against your body. (2) if sitting, try to touch both elbows together behind your back.
- ✓ **Chest** - breathe in, hold your breath and tighten your chest muscles.
- ✓ **Shoulders** - breath in, hold your breath and again shrug your shoulders as if trying to touch them to your ears.
- ✓ **Neck** - (1) stretch your head back, as if touching your chin to the ceiling. (2) Bend your head forward reaching your chin toward your chest.
- ✓ **Face** - frown, scrunch face and make a stiff "pucker" with your lips, shutting eyes tight.

When you have finished your Progressive Muscle Relaxation session, remain quiet with eyes closed for a few seconds. Mentally scan your body for any residual

tension. If a particular area remains tense, repeat one or two tense-relax cycles for that group of muscles.

Upon conclusion take a deep breath, hold it and say to yourself, “I’m calm” as you slowly exhale. Repeat. Open your eyes and give yourself a few more seconds to adjust before slowly getting up.

Notice how calm you are.

The Progressive Muscle Relaxation method will enable you to recognize what it actually feels like to be deeply physically relaxed. You can then willfully - anytime, anywhere - initiate physical muscle relaxation at the first signs of any tension.

Cherish this sense of well being throughout your entire body!

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